

CURRICULUM VITAE

Dr. Paul F. Hudak

*Department of Geography and the Environment, University of North Texas, 1155 Union Circle #305279, Denton,
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EDUCATION

Ph.D., Geography, University of California, Santa Barbara, 1991

M.S., Geology, Wright State University, 1988

B.S., Geology, *summa cum laude*, Allegheny College, 1986

PROFESSIONAL EMPLOYMENT

Department of Geography and the Environment, University of North Texas (UNT)

Professor, 2002-present

Chair, 2004-17

Associate Professor, 1997-02

Assistant Professor, 1992-97

Advanced Environmental Research Institute (AERI), UNT, 2016-present

Environmental Science Program, UNT, 1992-present

Post-Graduate Researcher, Graduate Researcher, Teaching Assistant (various courses in geology, hydrology, geography), Department of Geography, University of California, Santa Barbara (UCSB), 1988-92

Graduate Teaching Assistant (various courses in geology, hydrology), Department of Geology, Wright State University (WSU), 1986-88

Geologist

BCI Geonetics, Santa Barbara, CA, 1993

HFA, Ventura, CA, 1991-92

Balance Hydrologics, Berkeley, CA, 1991

K-C Geotechnical Associates, Santa Barbara, CA, 1989-91

Panterra Corporation, Yellow Springs, OH, 1988

WSU Center for Ground Water Management, Dayton, OH, 1988

Moody and Associates, Meadville, PA, 1985

U.S. Geological Survey (USGS), Menlo Park, CA, 1986

Workshop Instructor, Tutor

Groundwater Modeling Workshops, UCSB, 1989, 91-92

Geology Tutor, Allegheny College, 1985-86

COURSES TAUGHT (u = undergraduate; g = graduate)

Intro. Groundwater Hydrology (u/g), Environmental Geology (u/g), Intro. Physical Geology (u), Physical Geology Lab (u), Intro. Historical Geology (u), Earth Science (u), Geosystems, Environment, and Society (u), Geography of U.S. and Canada (u/g), Water Resources Seminar (g), Geography Capstone (u), Special Problems (u/g), Cooperative Education in Geography (u), Geography Institute (u), Research Design and Geographic Applications (g), Individual Research (g), Thesis (g), Dissertation (g)

OTHER PROFESSIONAL ACTIVITY

Sessions and Field Trips Chaired, Led, and Organized

Water Resources, Applied Geography Conference (AGC), Fort Worth, TX, 2010
 Water Resources I, AGC, Baton Rouge, LA, 2009
 Conservation and Management of Water Resources, AGC, Wilmington, DE, 2008
 Water Resources II and III, AGC, Indianapolis, IN, 2007
 Water Resources, AGC, Tampa, FL, 2006
 Water I: Water Quality and Law, AGC, St. Louis, MO, 2004
 Water Resources, AGC, Colorado Springs, CO, 2003
 Environment I: Water Quality, AGC, Binghamton, NY, 2002
 Resource Conservation and Management, AGC, Fort Worth, TX, 2001
 Issues in Ground and Surface Water Management, AGC, Tampa, FL, 2000
 Protecting Groundwater Quality, AGC, Charlotte, NC, 1999
 Surface and Groundwater Quality Issues, AGC, Louisville, KY, 1998
 Watershed Management, AGC, Louisville, KY, 1998
 Surface-Groundwater Interactions in Managing Water Resources, AGC, Albuquerque, NM, 1997
 Dinosaur Valley State Park, Association of American Geographers (AAG), Fort Worth, TX, 1997
 Geochemistry of Precipitation and Groundwater, AAG, Charlotte, NC, 1996
 Geography Session, Annual Meeting of the Texas Academy of Science, Galveston, TX, 1996

Committees, Panels, and Boards

Editorial Advisory Boards

The Scientific World Journal, 2012-2017
Journal of Residuals Science and Technology, 2010-16
International Journal of Environmental Research, 2010-2016
Environmental Geosciences, 2008-present
Environmental Monitoring and Assessment, 2003-18

Merit Review Panels

City of Dallas EEI Summit on Water Conservation, 2020
 National Science Foundation (NSF), 1995, 2006-2015 (10 panels)
 Environmental Protection Agency (EPA), 1995, 1998, 2000 (3 panels)
 Promotion and Tenure Review, Baylor University, 2015
 Promotion and Tenure Review, University of South Florida, St. Petersburg, 2007
 Paper and Poster Evaluation (Sigma Xi, 1998; AGC, 1997, 2006; AAG, Southwest Division, 1992)

Professional Committees

Student Chapter Faculty Advisor, American Association of Petroleum Geologists, 2018-present
 Conference Planning Committee, AAG, Southwest Division, 2016
 External Program Reviewer, MSCD, 2011
 Board of Directors, AGC, 1997-2010
 Board on Oceans and Atmosphere, Association of Public and Land-Grant Universities, 2007-present
 KSTAT Standards Committee, American Society of Civil Engineers (ASCE), 2006-present
 Long-Term Monitoring Task Committee, ASCE, 2000-2006
 Geology Focus Group and Symposium, McGraw-Hill, Jackson Hole, WY, 2003, 2005
 Local Planning Committee, GIS/LIS Conference and Exposition, Fort Worth, TX, 1998
 Program Committee, AAG, Fort Worth, TX, 1997

Manuscript Reviewer

Agronomy
American Society of Civil Engineers
Applied Geochemistry
Applied Geography
Arid Land Research and Management
Bulletin of Environmental Contamination and Toxicology
Canadian Geotechnical Journal
Carbonates and Evaporites
Environmental Earth Sciences
Environmental and Engineering Geoscience
Environmental Geosciences
Environmental Geochemistry and Health
Environment International
Environmental Management
Environmental Management Review
Environmental Monitoring and Assessment
Environmental Pollution
Environmental Processes
Environmental Science and Pollution Research
Environmental Science and Technology
Geographical Analysis
Ground Water
Ground Water Monitoring and Remediation
Human Geography
Hydrogeology Journal
Hydrological Processes
International Journal of Applied Geospatial Research
International Journal of Environmental Research
International Journal of Environmental Studies
Journal of Agricultural Education and Extension
Journal of the American Water Resources Association
Journal of Computing in Civil Engineering
Journal of Contaminant Hydrology
Journal of Environmental Engineering
Journal of Environmental Management
Journal of Environmental Quality
Journal of Environmental Science and Health
Journal of Environmental Science and Technology
Journal of Environmental Systems
Journal of Geological Research
Journal of Geoscience Education
Journal of Great Lakes Research
Journal of Hazardous Materials
Journal of Hydroinformatics
Journal of Hydrologic Engineering
Journal of Hydrology
Journal of Material Cycles and Waste Management
Journal of Residuals Science and Technology
Papers of the Applied Geography Conferences
Pedosphere
Pet Behaviour Science
Processes
Science of the Total Environment
Southeastern Geographer

Sustainability
Sustainable Communities Review
The Scientific World Journal
Water
Water, Air, and Soil Pollution
Water Research
Water Resources Bulletin
Waste Management
Water Resources Research

Proposal Reviewer

NSF, EPA, USGS, UNT, National Geographic Society, City University of New York, Oak Ridge Institute for Science and Education, City of Dallas (EEI Summit on Water Conservation)

Book Reviewer

Brooks/Cole, Cambridge, Cengage, CRC Press, Freeman, Guilford, Kendall Hunt, Macmillan, McGraw-Hill, Norton, Oxford Press, Pearson, Prentice Hall, Texas A&M University Press, Wiley

Technical Advisor

EPA, U.S. Bureau of Reclamation, Texas Department of Health, Cornerstone Environmental, Construction Analysis Systems, SIE Manufacturing, Strittmatter Irrigation, Environmental Engineering and Geotechnics, Hayden Geologic Consultants, Montana Department of Natural Resources and Conservation, North Central Texas Council of Governments, Fort Worth Star-Telegram, DAVID Group, Texas International Education Consortium, The Years Project, SciOPS

UNIVERSITY COMMITTEES AND COUNCILS

Faculty Development Leave Committee, 2021-present
 Graduate Council, 2020-present
 Faculty Senate Representative, Scholarship Committee, 2019-present
 Graduate Travel Committee (ad hoc), 2023
 Graduate School Appeals Committee (ad hoc), 2022-23
 Environmental Education and Outreach Committee, AERI, 2017-18
 Member, Ally, Advocates and Allies Program, 2017-18
 Member, Urban Studies Network, 2017-18
 Member, Human Security Research Collaboration, 2013-18
 Presenter, UNT Retiree's Association, 2014
 Discussion Forum on Careers in Sustainability, Career Center, 2014
 Planning Committee, Master's Program in International Studies, 2007-08, 2013
 Core Curriculum Forum, 2008
 Faculty Sponsor, North Texas Energy and Environment Club, 2008-10
 Advancement Development Network, 2006-17
 Student Mentor, NSF, Research Experience for Undergraduates, 2008
 Student Mentor, Honors Program, 2006-08, 2020-22
 Graduate Research Committee, 2006
 Strategic Directions in Science and Engineering Task Force, 2004-05
 Discussion Forum on University Communication, 2005
 Group Leader, Campus Beautification Day, 2004
 Space Committee, Environmental Education, Science and Technology (EESAT) Building, 2002-03
 Research Forum, 2001
 Accreditation Team, National Council for the Accreditation of Teacher Education, 2000-01
 Library Committee, 2000-04
 Accreditation Team, Coop Program, 1999

Planning Committee, EESAT Building, 1995-98
 Applicant Interviewer, Texas Academy of Mathematics and Science, 1996-97
 Faculty Representative and Nomination Committee Chair, Udall Scholarship, 1995-96
 Faculty Workload Committee, 1993-96 (Chair, 1995-96)
 Service Advantage Program, 1994
 Resource Mentor, 1992-98

COLLEGE OF ARTS AND SCIENCES COMMITTEES AND COUNCILS

Director Search Committee, Institute of Applied Sciences, 2007
 Curriculum Committee, Environmental Science Program, 2006-09
 Admissions Committee, Environmental Science Program, 2005-09
 Personnel Affairs Committee, 2003-04
 Internal Reviewer, Economics Programs, 2003
 Volunteer, Rock and Mineral Road Show, Elm Fork Education Center, 2003
 Undergraduate Curriculum Committee, 2002-05
 Senior Project Advisor, Undergraduate Honors Program, 2001-02
 Merit Review Committee, 2000
 Lab Science Oversight Committee, 2000
 Director, Center for Spatial Analysis and Mapping, 1996-98
 Faculty Representative, College EXPO, 1996-97
 Council of Undergraduate Advisors, 1994-2021

DEPARTMENT COMMITTEES AND COUNCILS

Advisory Committee, 2023-present
 Graduate Program Committee, 2022-present
 Co-Coordinator, Water Resources Certificate, 2020-present
 Promotion and Tenure Committee, 2020-present
 Internship (ad hoc), 2023
 Personnel Assessment Committee, 2022-23 (Chair, 2023-present)
 Undergraduate Committee, 2019-21
 Marketing Committee, 2019
 Contributor, Enrollment Task Force, 2018
 Physical Geology Content Subcommittee, 2017
 Promotion and Tenure Committee, 2017
 Marketable Skills Project, 2017
 Faculty Advisor, Graduate Student Council, 2017
 Coordinator, Fall Seminar Series, 2014
 Natural Sciences Core Principles Committee, 2009
 Physical Geology Core Assessment Committee, 2009
 Geographic Information Systems (GIS) Day Planning Committee and Volunteer, 2007-09
 Faculty Sponsor, Geography Honor Society, 2004-17
 Coordinator, Core/Program Assessment Reporting, 2002-08
 Coordinator, UNT Exhibit at Pleasant Hills Mineral Show, 2002
 Coordinator, Geography Awareness Week, 2002
 Developed and Implemented Water Resources Track for M.S. in Applied Geography, 2000
 Coordinator, Physical Geology Labs, 1999-2022
 Coordinator, Undergraduate Certificate in GIS, 1999-2008
 Coordinator, Graduate Certificate in GIS, 1999-2006
 Strategic Planning Committee, 1999, 2023
 Chair, Committee on Annual Evaluations, 1997
 Coordinator, UNT Exhibit at Dallas Gem and Mineral Show, 1997
 Graduate Admissions Committee, 1995-2013
 Coordinator, Alumni Recognition and Honors Day, 1995-2008
 Science Core Course Committee, 1995-98

Chair, B.S. Planning and Implementation Committee, 1995-96
 Undergraduate Advisor, 1994-21
 Coordinator, Job and Internship Placement Program, 1994-2020
 Coordinator, Department Newsletter, 1993-94
 Faculty Search Committee, 1992-2013, 2019-20, 2022-24 (Chair, eight searches)
 Honors and Awards Committee, 1992-2017 (Chair, 2000-08)
 Personnel Assessment Committee, 1992-2004, 2022-23
 Curriculum Committee, 1992-2012, 2019

GRADUATE STUDENT COMMITTEES

Doctoral (underlined = chaired)

M. Ablan, J. Alderman, W. Becker, P. Brady, R. Buckalew, R. Burk, M. Daniel, F. Dohanich, P. Duncan, H. Goetz, J. Hankinson, B. Hunter, E. Jennings, A. Kadry, G. Maxey, G. Nebgen, M. Necsoiu, J. Nicols, S. Peacock, R. Rijal, N. Sanmanee, T. Stuckey, V. Thapa, A. Thapinta, K. Thuesen, D. Viera, D. Wachal

Master's (underlined = chaired)

S. Allsup, S. Antilla, P. Appel, J. Ayensu, L. Balsler, J. Barnett, T. Baugher, C. Beaubouef, P. Brady, B. Brasfield, I. Brestenska, L. Broyles, J. Byers, E. Carpenter, R. Chambers, L. Chen, J. Chessher, Y. Darkwa, C. Davee, E. Denlinger, D. Dickason, R. Dragoo, D. Driscoll, R. Edziyie, N. Enwright, J. Esmonde, S. Espinoza, D. Figuera, W. Flanagan, M. Ford, S. Frank, M. Gaither, S. Ganapavarapu, M. Gange, D. Girard, T. Graham, A. Grimes, D. Harsa, D. Herrin, L. Hightower, C. Hillin, J. Hoefert, D. Hoelting, D. Holbrook, S. Holcomb, K. Hudman, L. Jennings, J. Jimenez, K. Keya, R. Kirk, M. Koch, J. Kuiper, A. Lindbergh, C. Llamas, C. Mandava, W. Mangham, S. McCall, D. Michel, B. Miller, C. Moynihan, R. Mukherjee, A. Nepali, J. Nickerson, O. Omotere, P. Osei-Adjei, J. Palomino, M. Pettee, R. Pirtle, J. Proctor, B. Rains, R. Ramsey, H. Redfearn, C. Reiser, E. Roberts, R. Roka, D. Sallee, S. Sanmanee, G. Schells, T. Schells, M. Shakya, T. Sharp, M. Shrestha, E. Simon, R. Southworth, T. Spence, S. Stegall, L. Stewart, P. Strong, D. Sudduth, E. Tanski, S. Thapinta, P. Thomas, J. Torrecillas, J. Trescott, L. Vasquez, M. Veale, P. Vernekar, D. Wachal, J. Ward, S. White, L. Williams, P. Williams, S. Williams, M. Wilson, J. Woodard, S. Yildiz

COMMUNITY SERVICE

Volunteer Technical Advisor, Trinity Coalition, 2020
 Volunteer Appraiser, Destination Imagination, 2017
 Volunteer Disaster Worker, Red Cross, 2017-19
 Volunteer Instructor, Minecraft Club, UNT Innovation Greenhouse, 2015
 Co-Chair, Roadside Clean-Up Committee, Cross Roads, Texas, 2012-15
 Volunteer, City of Grapevine, 2006
 Mentor, Denton High School Science Fair, 2003-05
 Volunteer, Summit Sporting Clay Shoot for Handicapped Youth, Denton County, 2002
 Plate Tectonics Presentation, Immaculate Conception Middle School, 2001
 Geology Presentation, Frank Borman Elementary School, 2001
 Volunteer, Dallas Arboretum, 2000
 Hydrogeology Presentation, Chisolm Trail Middle School, 2000
 Geology Presentation, Selwyn Elementary School, 2000
 Volunteer Instructor, Stream Management Workshop, Marcus High School, 2000
 Volunteer Technical Advisor, Camp Summit (Summer Camp for Handicapped), 1999
 Geology Presentation, Skyline High School, 1999
 Geology Presentation, Gene Pike Middle School, 1999
 Volunteer, Bottomland Hardwood Restoration Project, Lewisville Lake Environmental Learning Area, 1999
 Volunteer, Habitat for Humanity, 1998-03
 Geology Presentation, Denton Girl Scouts, 1996, 2004

ACADEMIC HONORS AND AWARDS

Stanford's List of World's Top Scientists (Career, Top 2%), 2020, 2021, 2022, 2023
 Top Downloaded Article Certificate, Wiley, 2023
 Master's Program Excellence Award, American Association of Geographers, 2017
 Most Appreciated Professor Award, Department of Geography and the Environment, 2017, 2018
 President's Community Engagement Honor Roll, 2013
 Faculty Recognition Award, University Honors Day, 2008-09
 Eagle Feather Award for Undergraduate Mentoring, Honors College, 2007-08
 Eagle Feather Award for Service, College of Arts and Sciences, 2006
 Grapevine Volunteer Spirit Award, 2006
 UNT eCampus Innovator Award, 2004
 Editor's Award for Reviewing, *Journal of Environmental Engineering*, 2002
 Named Texas Higher Education Research and Professional Expert (Environmental Science), 2001-present
 Named Water Research Expert, Texas Water Resources Institute, 2000-present
 Nominated for Toulouse Scholar Award, 1999-2001
 Nominated for J.H. Shelton Excellence in Teaching Award, 1999
 Developing Scholars Award, UNT, 1996-97
 Texas Hall of Fame, 1996
 Nominated for Decker Scholar Award, 1995
 Who's Who: University Students (1985-86); Science and Engineering (1995-present); World (1997-present)
 General Affiliates Graduate Dissertation Fellowship, UCSB, 1991
 Graduate Student Fellowship, Department of Geography, UCSB, 1990-91
 Graduate Program Award, Department of Geology, WSU, 1988
 Sigma Xi Award for Excellence in Research, WSU, 1988
 Valedictorian, Allegheny College, 1986
 Academic All-American Collegiate Award, 1986
 Walter M. Small Prize, Department of Geology, Allegheny College, 1986
 Department Honors, Geology, Allegheny College, 1986
 Phi Beta Kappa Honor Society, Allegheny College, 1985-present
 National Association of Geology Teachers Scholarship, 1985
 John Scott Craig Prize, Allegheny College, 1984-85
 William Edgar Porter Prize, Allegheny College, 1984-85
 Doane Scholar, Allegheny College, 1982-86
 Alden Scholar, Allegheny College, 1982-85

PUBLICATIONS

Peer-Reviewed Journal Articles

Hudak, P.F., 2024. Segmented trenches for recovering contaminant plumes from lined waste impoundments. *Waste and Resource Management*, in press.

Hudak, P.F., 2024. Adaptive strategies of common buttonbush (*Cephalanthus occidentalis* L.) at developed lake margins. *Environmental Connection*, 19(2), in press.

Hudak, P.F., 2023. Concentrations of sulfur dioxide in urban air space above north-central Texas, U.S. *Papers in Applied Geography*, 9(4), 349-358.

Hudak, P.F., 2023. Ancient concretions support plants at lake shore. *The Professional Geologist*, 60(3), 48-49.

Hudak, P.F., 2023. Lawns too hot for dogs in warm weather. *Journal of Applied Animal Welfare Science*, 26(2), 147-152.

Hudak, P.F., 2023. Estimating erosion rates with common buttonbush (*Cephalanthus occidentalis* L.): An application to Lewisville Lake, Texas. *Stormwater Solutions*, 24(1), 18-21.

- Hudak, P.F., 2022. Long-term trends of fine particulate matter in the Dallas-Fort Worth metropolitan area. *Journal of Environmental Health*, 85(2), 8-16.
- Hudak, P.F., 2022. Warm air leads to hazardous ground temperatures when walking dogs in built and natural environments. *Pet Behaviour Science*, 12, 31-42.
- Hudak, P.F., 2022. Long-term tropospheric ozone concentrations and associated meteorological and emissions variables at a suburban monitoring station in Dallas-Fort Worth, Texas. *Environmental Quality Management*, 32(2), 309-316.
- Hudak, P.F., 2022. Reactive well and slurry plug arrays for groundwater remediation. *Waste Advantage*, 13(1), 40-43.
- Proctor, J., P.F. Hudak, G.O. Dick, and R. Herrington, 2022. Waterbirds in constructed suburban wetlands, eastern Denton County, Texas, USA. *International Journal of Environmental Studies*, 79(4), 714-723.
- Hudak, P.F., 2021. Selenium, boron, and nitrate concentrations in groundwater of the southern Ogallala Aquifer, Texas, USA. *Journal of Water and Environmental Sciences*, 5(1), 603-615.
- Hudak, P.F., 2021. Aquifer recharge rates can affect landfill leachate plume migration rates. *Environmental Science & Engineering*, 34(5), 42-43.
- Yesildirek, M.V. and P.F. Hudak, 2021. Visualizing riparian ecotone fragmentation in urbanizing watersheds: A case study of upper Hickory Creek, north-central Texas. *Environmental Quality Management*, 30(3), 37-41.
- Hudak, P.F., 2021. Effect of distance to orthogonal buffer zone boundary on contaminant detection well layout at solid waste impoundment. *Journal of Solid Waste Technology and Management*, 47(1), 131-136.
- Hudak, P.F., 2021. Uranium concentrations and chemical associations in the southern Gulf Coast Aquifer, Texas. *International Journal of Environmental Studies*, 78(3), 398-409.
- Hudak, P.F., 2020. Low-energy extraction wells for removing contaminant plumes originating from lined landfills. *Environmental Science & Engineering*, 33(5), 40-44.
- Hudak, P.F., 2020. Natural attenuation and low-energy, recirculating well pairs as options for mitigating leachate releases from contemporary landfills. *Waste Advantage*, 11(9), 54-57.
- Hudak, P.F., 2020. Study results: Controlling Chinese privet in lawns. *Turf*, May 4, 1-4.
- Hudak, P.F., 2019. Effects of leakage rate and liner seam orientation on detection monitoring configurations at waste impoundments. *Environmental Practice*, 21(3), 108-112.
- Hudak, P.F., 2019. Sustainable three-well pumping strategy for efficient detection monitoring near waste impoundments. *Environmental Quality Management*, 28, 63-66.
- Hudak, P.F., 2019. Spatial distribution of boron concentrations in the Edwards-Trinity Plateau Aquifer, southwest Texas, USA. *The Professional Geologist*, 56(2), 56-61.
- Hudak, P.F., 2019. Applicability of paired extraction and injection wells for detecting contaminants released from landfills. *Journal of Solid Waste Technology and Management*, 45(3), 363-368.
- Hudak, P.F., 2018. Spatial and temporal trends of nitrate, chloride, and bromide concentration in an alluvial aquifer, north-central Texas, USA. *Environmental Quality Management*, 27(4), 79-86.
- Hudak, P.F., 2018. Groundwater monitoring of landfill leachate. *Waste Management World*, 16, 48.

Hudak, P.F. 2018. Associations between dissolved uranium, nitrate, calcium, alkalinity, iron, and manganese concentrations in the Edwards-Trinity Plateau Aquifer, Texas, USA. *Environmental Processes*, 5(2), 441-450.

Hudak, P.F. 2018. Variable-component, energy-efficient technology for groundwater remediation. *Environmental Practice*, 20(1), 1-7.

Hudak, P.F. 2018. Nitrate concentration patterns over space and time in a regionally sloping sedimentary aquifer, Texas, USA. *Bulletin of Environmental Chemistry and Toxicology*, 100(3), 416-420.

Hudak, P.F. 2018. Remediating contaminant plumes in groundwater with shallow excavations containing coarse reactive media. *Environmental Management*, 61(2), 304-309.

Hudak, P.F. 2018. Evaluating the effectiveness of pumping well configurations for groundwater remediation. *Environmental Science & Engineering*, 31(1), 40-43.

Hudak, P.F. 2017. Locating low-energy extraction wells to remove contaminated groundwater in heterogeneous aquifers. *Pollution Equipment News*, August/September, 24-26.

Hudak, P.F., 2017. Large-diameter, non-pumped wells filled with reactive media for groundwater remediation. *Environmental Earth Sciences*, 76(19), 1-4.

Hildenbrand, Z.L., D.D. Carlton, J.M. Meik, J.T. Taylor, B.E. Fontenot, J.L. Walton, D. Henderson, J.B. Thacker, S. Korlie, C.J. Whyte, P.F. Hudak, and K.A. Schug, 2017. A reconnaissance analysis of groundwater quality in the Eagle Ford shale region reveals two distinct bromide/chloride populations. *Science of the Total Environment*, 575, 672-680.

Hudak, P.F., 2017. Relative efficiency of single and multiple low-capacity wells for containing and removing contaminant plumes in groundwater. *Journal of Solid Waste Technology and Management*, 43(1), 1-6.

Barnett, J.M., P.F. Hudak, and G.O. Dick, 2016. Removing Chinese privet (*Ligustrum sinense* Lour.) and establishing native plants in a flooded riparian corridor in north-central Texas, USA. *Environmental Quality Management*, 26(2), 121-129.

Hudak, P.F., 2016. Effect of hydraulic conductivity contrast on non-pumped wells in backfilled trenches for aquifer remediation. *Water, Air, & Soil Pollution*, 227(7), 1-7.

Hudak, P.F., 2016. Solute distribution in the Ogallala Aquifer, Texas: Lithium, fluoride, nitrate, chloride and bromide. *Carbonates and Evaporites*, 31(4), 437-448.

Hudak, P.F., 2016. Non-pumped wells in backfilled trenches versus permeable reactive barriers for containing and treating contaminated groundwater. *Environmental Practice*, 18(4), 247-252.

Beck, W. and P.F. Hudak, 2016. Low-cost pond coring platform: Design and application to sedimentation and arsenic accumulation in north-central Texas. *Erosion Control*, 23(6), 42-47.

Hildenbrand, Z.L., D.D. Carlton, B.E. Fontenot, J.M. Meik, J.L. Walton, J.B. Thacker, S. Korlie, C.P. Shelor, A.F. Kadjo, A. Clark, S. Usenko, J.S. Hamilton, P.M. Mach, G.F. Verbeck, P.F. Hudak, and K.A. Schug, 2016. Temporal variation in groundwater quality in the Permian Basin of Texas, a region of increasing unconventional oil and gas development. *Science of the Total Environment*, 562, 906-913.

Shrestha, M. and P.F. Hudak, 2016. Exceedance frequency analysis of contaminants in streams under dry-weather conditions, Denton, Texas. *Bulletin of Environmental Contamination and Toxicology*, 96, 254-258.

- Hudak, P.F., 2016. Evaluation of non-pumped wells with slurry cutoff walls for containing and removing contaminated groundwater. *Environmental Earth Sciences*, 75(1), 1-5.
- Meik, J.M., B.E. Fontenot, Z.L. Hildenbrand, D.D. Carlton, J.L. Walton, J.T. Taylor, J.B. Thacker, S. Korlie, C.P. Shelor, D.J. Henderson, A.F. Kadjo, C.E. Roelke, P.F. Hudak, T. Burton, H.S. Rifai, and K.A. Schug, 2016. Response to comment on "A comprehensive analysis of groundwater quality in the Barnett Shale region." *Environmental Science & Technology*, 50(1), 498-499.
- Strong, P. and P.F. Hudak, 2015. Nitrogen and phosphorus removal in a rain garden flooded with wastewater and simulated storm water. *Environmental Quality Management*, 25(2), 63-69.
- Hudak, P.F., 2015. Low-energy alternatives for removing contaminant plumes in groundwater. *The Professional Geologist*, 52(4), 23-26.
- Hildebrand, Z.L., D.D. Carlton, B.E. Fontenot, J.M. Meik, J. Walton, J.T. Taylor, J.B. Thacker, S. Korlie, C.P. Shelor, D.J. Henderson, A.F. Kadjo, C.E. Roelke, P.F. Hudak, T. Burton, H.S. Rifai, and K.A. Schug, 2015. A comprehensive analysis of groundwater quality in the Barnett Shale region. *Environmental Science & Technology*, 49, 8254-8262.
- Hudak, P.F., 2015. Low-capacity well pairs for treating contaminated groundwater in homogeneous and heterogeneous environments. *Remediation*, 25(2), 43-53.
- Hudak, P.F., 2014. Spatial pattern of ground-level ozone concentration in Dallas-Fort Worth metropolitan area. *International Journal of Environmental Research*, 8(4), 897-902.
- Hudak, P.F., 2014. Tracking source-controlled, evolving plumes undergoing natural attenuation in heterogeneous aquifers. *Journal of Solid Waste Technology and Management*, 40(2), 148-151.
- Hudak, P.F., 2014. Inundation patterns and plant growth in constructed wetland characterized by dynamic water budget model. *Environmental Earth Sciences*, 72(6), 1821-1826.
- Hudak, P.F., 2014. Comparison of permeable reactive barrier, funnel and gate, non-pumped wells, and low-capacity wells for groundwater remediation. *Journal of Environmental Science and Health*, 49(10), 1171-1175.
- Hudak, P.F., 2013. Remediating contaminated groundwater with low-capacity injection and non-pumped wells. *Remediation*, 23(4), 71-76.
- Williams, P.E., G.O. Dick, and P.F. Hudak, 2013. Evaluation of common carp (*Cyprinus carpio*) exclusion and trapping devices for protecting aquatic plant founder colonies. *Environmental Pollution Control Journal*, 16(4), 22-25.
- Hudak, P.F., 2013. Effect of slurry cutoff walls on natural attenuation of contaminant plumes in homogeneous and heterogeneous aquifers. *Environmental Pollution Control Journal*, 16(3), 16-22.
- Hudak, P.F., 2013. Shallow, non-pumped wells: A low-energy alternative for cleaning polluted groundwater. *Bulletin of Environmental Contamination and Toxicology*, 91(1), 107-110.
- Hudak, P.F., 2012. Natural attenuation with varying degrees of aquifer heterogeneity: Implications for groundwater monitoring. *Remediation*, 22(4), 93-98.
- Hudak, P.F., 2012. Relative efficiency of multi-transect, non-pumped, reactive well networks for removing contaminated groundwater. *Journal of Environmental Science and Health*, 47(13), 2159-2162.
- Hudak, P.F., 2012. Effect of aquifer heterogeneity on non-pumped, reactive well networks for removing pollutants in groundwater. *Bulletin of Environmental Contamination and Toxicology*, 88(6), 997-1000.

- Hudak, P.F., 2012. Nitrate and chloride concentrations in groundwater beneath a portion of the Trinity Group outcrop zone, Texas. *International Journal of Environmental Research*, 6(3), 663-668.
- Hudak, P.F., 2011. Designing funnel-and-gate groundwater remediation systems near property corners. *Remediation*, 21(4), 119-126.
- Hudak, P.F., 2011. Monitoring contaminated groundwater enclosed in slurry walls. *Environmental Pollution Control Journal*, 14(6), 22-27.
- Hudak, P.F., 2011. Assessment of multi-gate interceptors equipped with baffles in contaminated aquifers. *Bulletin of Environmental Contamination and Toxicology*, 87(1), 96-100.
- Hudak, P.F., 2011. Spatial distribution of solutes in aquifer outcrop zones along the Brazos River, east-central Texas. *International Journal of Environmental Research*, 5(3), 595-602.
- Hudak, P.F., 2011. Modeling investigation of permeable reactive barriers in anisotropic aquifers. *Environmental Pollution Control Journal*, 14(4), 17-20.
- Enwright, N., P.F. Hudak, and D. Hatley, 2011. Estimating inundation patterns in detention wetlands: Methodology and application to north-central Texas. *International Journal of Environmental Studies*, 68(1), 61-71.
- Graham, T. and P.F. Hudak, 2011. Potential hazards of wind energy for rare, threatened, and endangered birds and bats in Texas. *International Journal of Environmental Research*, 5(4), 917-922.
- Hudak, P.F., 2010. Detecting contaminants in groundwater: Strategies for incorporating cutoff walls. *Journal of Solid Waste Technology and Management*, 36(4), 240-245.
- Hudak, P.F., 2010. Efficacy of dilution barriers for remediating contaminated aquifers. *Environmental Pollution Control Journal*, 13(3), 24-28.
- Hudak, P.F., 2010. Funnel-and-gate remediation systems augmented with passive filter wells. *Journal of Environmental Science and Health*, 45(11), 1441-1445.
- Hudak, P.F., 2010. Nitrate, arsenic, and selenium concentrations in the Pecos Valley Aquifer, west Texas, USA. *International Journal of Environmental Research*, 4(2), 229-236.
- Hudak, P.F., 2010. Solute and potential sources in a portion of the Trinity Aquifer, Texas, USA. *Carbonates and Evaporites*, 25(1), 5-20.
- Hudak, P.F., 2010. Viability of longitudinal trenches for capturing contaminated groundwater. *Bulletin of Environmental Contamination and Toxicology*, 84(4), 418-421.
- Hudak, P.F., 2009. Efficiency comparison of variably-spaced, non-pumped wells for filtering polluted groundwater. *Journal of Environmental Protection Science*, 3, 107-110.
- Hudak, P.F., 2009. Internal versus external configurations of passive wells with filter cartridges for cleaning contaminated groundwater. *Remediation*, 20(1), 133-141.
- Hudak, P.F., 2009. Comparison of variably-spaced, backfilled trenches for controlling contaminant plumes in heterogeneous aquifers. *Environmental Pollution Control Journal*, 12(3), 23-31.
- Hudak, P.F., 2009. Elevated fluoride and selenium in west Texas groundwater. *Bulletin of Environmental Contamination and Toxicology*, 82(1), 39-42.

Enwright, N. and P.F. Hudak, 2009. Spatial distribution of nitrate and related factors in the High Plains Aquifer, Texas. *Environmental Geology*, 58(7), 1541-1548.

Wachal, D.J., K.E. Banks, P.F. Hudak, and D. Harmel, 2009. Modeling erosion and sediment control practices with RUSLE 2.0: A management approach for natural gas well sites in Denton County, Texas, USA. *Environmental Geology*, 56(8), 1615-1627.

Wachal, D.J., R.D. Harmel, K.E. Banks, and P.F. Hudak, 2008. Evaluation of WEPP for runoff and sediment yield prediction on natural gas well sites. *Transactions of the American Society of Agricultural and Biological Engineers*, 51(6), 1977-1986.

Hudak, P.F., 2008. Evaluation of reactive well networks for remediating heterogeneous aquifers. *Journal of Environmental Science and Health*, 43(7), 731-737.

Hudak, P.F., 2008. Configuring extraction-injection well pairs for containing and removing contaminated groundwater. *Environmental Pollution Control Journal*, 11(3), 39-42.

Hudak, P.F., 2008. Configuring passive wells with reactive media for treating contaminated groundwater. *Environmental Progress*, 27(2), 257-262.

Hudak, P.F., 2008. Numerical modeling assessment of three-gate structures for capturing contaminated groundwater. *Environmental Geology*, 55(6), 1311-1317.

Hudak, P.F., 2008. Distribution of arsenic concentrations in groundwater in the Seymour Aquifer, Texas, USA. *International Journal of Environmental Health Research*, 18(1), 79-82.

Hudak, P.F., 2007. Performance assessment of hanging funnel-and-gate structures designed by reverse particle tracking for capturing polluted groundwater. *Remediation*, 17(3), 37-46.

Hudak, P.F., 2007. Performance comparison of passive structures with multiple gates and funnels for capturing contaminated groundwater. *The Professional Geologist*, 44(5), 41-44.

Hudak, P.F., 2007. Mass transport in groundwater near hanging-wall interceptors. *Journal of Environmental Science and Health*, 42(3), 317-321.

Barranco, W.T., P.F. Hudak, and C.D. Eckhert, 2007. Evaluation of ecological and in vitro effects of boron on prostate cancer risk (United States). *Cancer Causes and Control*, 18, 71-77.

Hudak, P.F., 2006. Influence of contaminant source node spacing and dispersivity on detection capability of groundwater monitoring networks. *Journal of Solid Waste Technology and Management*, 32(1), 36-43.

Hudak, P.F., 2006. Distance-constrained contaminant detection networks in aquifers with varying hydraulic gradients. *Bulletin of Environmental Contamination and Toxicology*, 77(1), 74-81.

Hudak, P.F., 2006. Spatial and temporal patterns of arsenic concentration in the High Plains Aquifer of Texas, USA. *International Journal of Environmental Studies*, 63(2), 201-209.

Hudak, P.F., 2006. Identifying vertical sampling intervals for detecting contaminants in groundwater monitoring wells. *Environmental Pollution Control Journal*, 9(4), 14-20.

Hudak, P.F. and K. Banks, 2006. Compositions of first flush and composite storm water runoff in small urban and rural watersheds, north-central Texas. *Urban Water Journal*, 3(1), 43-49.

Hudak, P.F., 2006. Strategies for designing groundwater monitoring networks at waste storage facilities with multiple source areas. *Ground Water Monitoring and Remediation*, 26(3), 77-81.

- Hudak, P.F., 2006. Groundwater monitoring strategies for variable contaminant migration boundaries. *Hydrological Sciences Journal*, 51(3), 524-530.
- Hudak, P.F., 2006. Heuristic for constructing minimum-well groundwater monitoring configurations at waste storage facilities. *Journal of Environmental Science and Health*, 41(2), 185-193.
- Hudak, P.F., 2005. Pattern and sources of nitrate and chloride in groundwater, southeast Texas, USA. *Environmental Pollution Control Journal*, 8(3), 52-57.
- McCall, S., P.F. Hudak, and I. Klaver, 2005. Developing water resources in rural Jamaica: A case study in Southern Trelawny. *Sustainable Communities Review*, 8(1), 44-53.
- Williams, L.L. and P.F. Hudak, 2005. Hydrology and plant survival in excavated depression near earthen dam in north-central Texas. *Environmental Geology*, 48(6), 795-804.
- Hudak, P.F., 2005. Sensitivity of groundwater monitoring networks to contaminant source width for various seepage velocities. *Water Resources Research*, 41(8), 1-4 (W08501).
- Hudak, P.F. and A. Thapinta, 2005. Agricultural pesticides in groundwater of Kanchana Buri, Ratcha Buri, and Suphan Buri provinces, Thailand. *Bulletin of Environmental Contamination and Toxicology*, 74(4), 631-636.
- Williams, S.A. and P.F. Hudak, 2005. MTBE-impacted groundwater in the Woodbine Aquifer, Denton, Texas. *The Professional Geologist*, 42(4), 32-34.
- Forbes, M.G., K.L. Dickson, F. Saleh, W.T. Waller, R.D. Doyle, and P.F. Hudak, 2005. Recovery and fractionation of phosphorus retained by lightweight expanded shale and masonry sand used as media in subsurface flow treatment wetlands. *Environmental Science & Technology*, 39, 4621-4627.
- Hudak, P.F., 2005. Radioactivity in the Ogallala and Dockum Aquifers, northwest Texas, USA. *Environmental Geology*, 47(2), 283-289.
- Hudak, P.F., 2005. Effect of setback distance on ability of gravel trenches to intercept contaminated groundwater. *Environmental Monitoring and Assessment*, 104, 419-423
- Brady, P., P.F. Hudak, S. Sitton, and S. Wood, 2004. Curbing recyclable waste. *Waste Age*, 35(11), 24.
- Hudak, P.F., 2004. Effects of funnel and gate geometry on capture of contaminated groundwater. *Bulletin of Environmental Contamination and Toxicology*, 72(3), 557-563.
- Hudak, P.F., 2004. Boron and selenium contamination in south Texas groundwater. *Journal of Environmental Science and Health*, 39(11-12), 2827-2834.
- Hudak, P.F. and M. Parker, 2004. Alpha and beta radioactivity in groundwater of the Hickory, Mid-Cambrian, and Ellenburger-San Saba Aquifers, central Texas, USA. *International Journal of Environmental Studies*, 61(6), 677-686.
- Hudak, P.F., 2004. Performance comparison of interceptor trench configurations for extracting contaminated groundwater. *Journal of Environmental Science and Health*, 39(5), 1295-1300.
- Hudak, P.F., 2004. Augmenting groundwater monitoring networks near landfills with slurry cutoff walls. *Environmental Monitoring and Assessment*, 90, 113-120.
- Forbes, M.G., K.R. Dickson, T.D. Golden, P.F. Hudak, and R. Doyle, 2004. Dissolved phosphorus retention of light-weight expanded shale and masonry sand used in subsurface flow treatment wetlands. *Environmental Science & Technology*, 38(3), 892-898.

- Dohanich, F.A., P.F. Hudak, and S.F. Atkinson, 2004. On-road sensing of motor vehicle emissions: Associations between exhaust pollution levels and vehicle year. *International Journal of Environmental Studies*, 61(2), 139-143.
- Hudak, P.F., 2003. Oil production and groundwater quality in the Edwards-Trinity Plateau Aquifer, Texas, USA. *The Scientific World Journal*, 3, 1147-1153.
- Hudak, P.F., 2003. Occurrence of nitrate and arsenic in alluvium and bolson aquifers of west Texas, USA. *Bulletin of Environmental Contamination and Toxicology*, 71(5), 905-911.
- Hudak, P.F., 2003. Campus field exercises for introductory geoscience courses. *Journal of Geography*, 102, 220-225.
- Hudak, P.F., 2003. Discussion of "Associations between rural land uses and ground-water quality in the Ogallala Aquifer, northwest Texas" – Reply. *Ground Water Monitoring and Remediation*, 23(4), 98.
- Thapinta, A. and P.F. Hudak, 2003. Use of geographic information systems for assessing groundwater pollution potential by pesticides in central Thailand. *Environment International*, 29(1), 87-93.
- Hillin, C.K. and P.F. Hudak, 2003. Nitrate contamination in the Seymour Aquifer of west Texas, USA. *Bulletin of Environmental Contamination and Toxicology*, 70(4), 674-679.
- Maxey, G. and P.F. Hudak, 2003. Lightning, downed power line form intriguing rock structure in Denton, Texas. *The Professional Geologist*, 40(2), 2-4.
- Hudak, P.F., 2003. Viability of interceptor trenches for monitoring groundwater quality near landfills. *Journal of Environmental Science and Health*, A38(4), 711-717.
- Hudak, P.F., 2003. Chloride/bromide ratios in leachate derived from farm-animal waste. *Environmental Pollution*, 121(1), 23-25.
- Sallee, D. and P.F. Hudak, 2003. Denton County deer. *Texas Wildlife*, 18(10), 38-39.
- Hudak, P.F., 2003. Backup coverage in groundwater monitoring networks. *International Journal of Environmental Studies*, 60(5), 515-522.
- Hudak, P.F., 2003. Arsenic, nitrate, chloride, and bromide contamination in the Gulf Coast Aquifer, south central Texas, USA. *International Journal of Environmental Studies*, 60(2), 123-133.
- Hudak, P.F. and S. Sanmanee, 2003. Spatial patterns of nitrate, chloride, sulfate, and fluoride concentrations in the Woodbine Aquifer of north-central Texas, USA. *Environmental Monitoring and Assessment*, 82(3), 311-320.
- Hudak, P.F., 2002. Efficiency comparison of graphical approaches for designing contaminant detection networks in groundwater. *Water Resources Research*, 38(12/18), 1-5.
- Alderman, J.A., P.F. Hudak, and M. Acevedo, 2002. Chemical ratios and groundwater contamination in east Texas. *Bulletin of Environmental Contamination and Toxicology*, 69(6), 793-799.
- Hudak, P.F., 2002. Associations between rural land uses and ground-water quality in the Ogallala Aquifer, northwest Texas. *Ground Water Monitoring and Remediation*, 22(4), 117-121.
- Stuckey, H.T. and P.F. Hudak, 2002. Waste investment: Capitalizing on forgotten resources in municipal waste. *Environmental Protection*, 13(3), 60-71.

- Brady, P., P.F. Hudak, and M. Ji, 2002. Composition of residential solid waste in Denton, Texas. *Sustainable Communities Review*, 5(1), 35-38.
- Hudak, P.F., 2002. Spontaneous combustion of shale spoils at a sanitary landfill. *Waste Management*, 22(6), 687-688.
- Hudak, P.F., 2002. Designing equitemporal monitoring networks to detect contaminants in groundwater. *Bulletin of Environmental Contamination and Toxicology*, 68(2), 168-172.
- Hudak, P.F., 2002. Associations between distance lags, groundwater velocities, and detection efficiencies in groundwater monitoring networks. *Environmental Monitoring and Assessment*, 75(2), 215-221.
- Hudak, P.F., 2001. Sodium adsorption ratios and salinity levels in nine Texas aquifers: Implications for irrigated agriculture. *International Journal of Environmental Studies*, 58(3), 331-341.
- Hudak, P.F. and D.J. Wachal, 2001. Oil production, agriculture, and groundwater quality in the southeast Gulf Coast Aquifer, Texas. *Environmental Monitoring and Assessment*, 72, 249-264.
- Appel, P.A. and P.F. Hudak, 2001. Automated sampling of stormwater runoff in an urban watershed, north-central Texas. *Journal of Environmental Science and Health*, A36(6), 897-907.
- Hudak, P.F. and D.J. Wachal, 2001. Effects of brine injection wells, dry holes, and plugged oil/gas wells on chloride, bromide, and barium concentrations in the Gulf Coast Aquifer, southeast Texas, USA. *Environment International*, 26, 497-503.
- Hudak, P.F. and J. Chadbourne, 2001. Controlling gully erosion with earth dams in north-central Texas. *The Professional Geologist*, 38(1-2), 3-5.
- Hudak, P.F., 2001. Effects of groundwater velocity on sampling intervals for contaminant detection networks in aquifers. *Journal of Environmental Science and Health*, A36(1), 117-122.
- Hudak, P.F., 2001. Creased plastic rock permeameter for hydrogeology students. *Journal of Geoscience Education*, 49(2), 182-186.
- Hudak, P.F., 2001. Effective contaminant detection networks in uncertain groundwater flow fields. *Waste Management*, 21, 309-312.
- Stuckey, H.T. and P.F. Hudak, 2001. Effects of compost on loblolly pine tree growth in northeast Texas. *Compost Science and Utilization*, 9(1), 65-72.
- Hudak, P.F., 2001. Water hardness and sodium trends in Texas aquifers. *Environmental Monitoring and Assessment*, 68(2), 177-185.
- Hudak, P.F., 2001. Monitoring groundwater at landfills equipped with leachate collection systems. *Bulletin of Environmental Contamination and Toxicology*, 66(2), 156-161.
- Hudak, P.F., J. Davis, J. Reinisch, D. Smith, C. Welcker, and V. Woods, 2001. Soil erosion: It's a slippery slope. *Geospatial Solutions*, 11(1), 18-19.
- Hudak, P.F., 2001. Locating groundwater monitoring wells near cutoff walls. *Advances in Environmental Research*, 5(1), 23-29.
- Wachal, D.J. and P.F. Hudak, 2000. Mapping landslide susceptibility in Travis County, Texas, USA. *GeoJournal*, 51(3), 245-253.

- Kuiper, J.R. and P.F. Hudak, 2000. Post impoundment investigation of gravity-driven irrigation ponds in central Bolivia. *Water International*, 25(3), 390-393.
- Hudak, P.F., 2000. Sulfate and chloride concentrations in Texas aquifers. *Environment International*, 26, 55-61.
- Brady, P., P.F. Hudak, and K.L. Dickson, 2000. Surveying the commercial-municipal solid waste stream in Denton, Texas. *Municipal Solid Waste Management*, 10(5), 44-48.
- Hudak, P.F., N. Videan, and K. Ward, 2000. Nitrate and chloride concentrations in the High Plains Aquifer, Texas. *International Journal of Environmental Studies*, 57, 563-577.
- Stuckey, H.T., P.F. Hudak, and F.A. Schoolmaster, 2000. Landscape waste management programs and strategies. *Municipal Solid Waste Management*, 10(3), 54-60.
- Hudak, P.F., 2000. Distribution and sources of arsenic in the Southern High Plains Aquifer, Texas, USA. *Journal of Environmental Science and Health*, A35(6), 899-913.
- Hudak, P.F., 2000. Procedure for upgrading contaminant detection networks in aquifers. *Bulletin of Environmental Contamination and Toxicology*, 65(1), 62-69.
- Hudak, P.F., 2000. Regional trends in nitrate content of Texas aquifers. *Journal of Hydrology*, 228, 37-47.
- Hudak, P.F., 2000. Effects of two-dimensional mass transport modeling on groundwater monitoring configurations. *Bulletin of Environmental Contamination and Toxicology*, 64(1), 1-7.
- Kuiper, J.R. and P.F. Hudak, 2000. Sustaining agriculture in Bolivia. *Irrigation Journal*, 50(4), 16-20.
- Thapinta, A. and P.F. Hudak, 2000. Pesticide use and residual occurrence in Thailand. *Environmental Monitoring and Assessment*, 60(1), 103-114.
- Hudak, P.F. and V. Ramos, 2000. Developing groundwater resources in remote communities. *Sustainable Communities Review*, 3(2), 35-37.
- Hudak, P.F., D.J. Wachal, and B.A. Hunter, 1999. Managing subsurface property hazards: Reactive soils and underground tanks. *Urban Water*, 1(3), 237-241.
- Hudak, P.F., 1999. Influence of landfill shape and orientation on groundwater monitoring efficiency. *International Journal of Environmental Studies*, 57, 79-92.
- Hudak, P.F., 1999. Portable drilling rig for soil and groundwater investigation. *Soil and Groundwater*, 6, 30-31.
- Hudak, P.F., 1999. Fluoride levels in Texas groundwater. *Journal of Environmental Science and Health*, A34(8), 1659-1676.
- Hudak, P.F. and H.A. Loaiciga, 1999. Conjunctive use of vadose and saturated zone monitoring for subsurface contamination. *Environmental Monitoring and Assessment*, 59(1), 15-29.
- Hudak, P.F., 1999. Comparison of injection well patterns for remediating benzene-contaminated groundwater. *International Journal of Environmental Studies*, 56(5), 641-652.
- Hudak, P.F., 1999. A method for designing upgradient groundwater monitoring networks. *Environmental Monitoring and Assessment*, 57(2), 149-155.
- Hudak, P.F., 1999. Groundwater field station for geoscience students. *Journal of Geography*, 98(1), 23-28.

- Hudak, P.F., 1999. Chloride and nitrate distributions in the Hickory aquifer, central Texas, USA. *Environment International*, 25(4), 393-401.
- Hudak, P.F., 1999. A graben in the Eagle Ford Shale, Lewisville, Texas. *The Professional Geologist*, 36(4), 6-8.
- Hudak, P.F., 1998. Geologic controls on foundation damage in north-central Texas. *GeoJournal*, 45(3), 159-164.
- Hudak, P.F. and G. Sidder, 1998. Depth to bedrock in west-central Nevada. *Engineering and Mining Journal*, 199(6), 32EE-32GG.
- Hudak, P.F., B. Sadler, and B.A. Hunter, 1998. Analyzing underground water-pipe breaks in residual soils. *Water Engineering and Management*, 145(12), 15-20.
- Hudak, P.F., 1998. Procedure for shifting groundwater monitoring locations to enhance detection efficiency near landfills. *Journal of Environmental Science and Health*, A33(8), 1771-1780.
- Hudak, P.F., 1998. Nitrate levels in the Woodbine aquifer, north-central Texas. *Journal of Environmental Science and Health*, A33(6), 1041-1055.
- Hudak, P.F., 1998. A method for designing configurations of nested monitoring wells near landfills. *Hydrogeology Journal*, 6, 341-348.
- Hudak, P.F., 1998. Visualizing groundwater flow fields and contaminant plumes in an undergraduate hydrogeology course. *Journal of Geoscience Education*, 46, 132-136.
- Hudak, P.F., 1998. Groundwater monitoring strategies for variable versus constant contaminant loading functions. *Environmental Monitoring and Assessment*, 50(3), 271-288.
- Hudak, P.F., 1998. Configuring detection wells near landfills. *Ground Water Monitoring and Remediation*, 18(2), 93-96.
- Stewart, L.K., P.F. Hudak, and R.D. Doyle, 1998. Modeling hydrologic alterations to a developing wetland in an abandoned borrow pit. *Journal of Environmental Management*, 53(3), 231-239.
- Hudak, P.F. and G. Maxey, 1997. Geophysical prospecting for oil and gas well effluent. *The Professional Geologist*, 34(13), 2-4.
- Hudak, P.F., 1997. Peripheral versus perpendicular groundwater monitoring configurations. *Journal of Environmental Science and Health*, A32(9), 2575-2584.
- Hudak, P.F. and S. Blanchard, 1997. Land use and groundwater quality in the Trinity Group outcrop of north-central Texas. *Environment International*, 23(4), 507-517.
- Hudak, P.F., 1997. Evaluation of a capture zone overlay method for designing groundwater remediation systems. *Environmental Geology*, 31(1), 21-26.
- Hudak, P.F. and S.A. White, 1997. Modeling alternative groundwater remediation methods in contrasting hydrogeologic settings. *Journal of Environmental Science and Health*, A32(1), 105-122.
- Hudak, P.F., 1996. Effects of compliance boundary location on contaminant detection networks in aquifers. *Environmental Monitoring and Assessment*, 43, 217-225.
- Hudak, P.F., 1996. A method for designing detection monitoring networks in layered aquifers with non-uniform flow. *Journal of Environmental Management*, 48(4), 341-356.

- Hudak, P.F., 1996. A heuristic for piping residential sprinklers. *Irrigation and Drainage Systems*, 10(4), 343-353.
- Hudak, P.F., 1996. Distribution of indoor radon concentrations and uranium-bearing rocks in Texas. *Environmental Geology*, 28(1), 29-33.
- Hudak, P.F., 1996. Hydrogeology lessons and exercises for introductory physical-geology students. *Journal of Geoscience Education*, 44(3), 315-317.
- Loaiciga, H.A., R.B. Leipnik, P.F. Hudak, and M.A. Marino, 1996. 1-, 2- and 3-dimensional effective conductivity of aquifers. *Mathematical Geology*, 28(5), 563-584.
- Hudak, P.F. and W. Langley, 1995. Proximity of streams to landfills in north-central Texas. *Texas Journal of Science*, 47(3), 163-173.
- Hudak, P.F., R.K. Speas, and F.A. Schoolmaster, 1995. Managing underground storage tanks in urban environments: A geographic information systems approach. *Water Resources Bulletin*, 31(3), 439-445.
- Hudak, P.F., 1995. Time-constrained recovery of contaminated groundwater. *The Environmental Professional*, 17(1), 34-42.
- Hudak, P.F., H.A. Loaiciga, and M.A. Marino, 1995. Regional-scale ground water quality monitoring via integer programming. *Journal of Hydrology*, 164, 153-170.
- Hudak, P.F., 1994. Effective porosity of unconsolidated sand: Estimation and impact on capture zone geometry. *Environmental Geology*, 24(2), 140-143.
- Hudak, P.F., 1994. Application of facility location theory to ground-water remediation. *Applied Geography*, 14(3), 232-244.
- Hudak, P.F., 1994. Ground-water modeling applied to production well management in a contaminated aquifer. *Environmental Geology*, 23(2), 119-124.
- Hudak, P.F., 1994. A method for monitoring groundwater quality near waste storage facilities. *Environmental Monitoring and Assessment*, 30, 197-210.
- Loaiciga, H.A., R.B. Leipnik, P.F. Hudak, and M.A. Marino, 1994. Effective hydraulic conductivity of non-stationary aquifers. *Stochastic Hydrology and Hydraulics*, 8(1), 1-17.
- Hudak, P.F., 1993. Optimizing environmental monitoring networks with direction-dependent distance thresholds. *Environmental Monitoring and Assessment*, 28, 53-60.
- Hudak, P.F., H.A. Loaiciga, and F.A. Schoolmaster, 1993. Application of geographic information systems to ground-water monitoring network design. *Water Resources Bulletin*, 29(3), 383-390.
- Hudak, P.F. and H.A. Loaiciga, 1993. An optimization method for monitoring network design in multi-layered ground water flow systems. *Water Resources Research*, 29(8), 2835-2845.
- Hudak, P.F., 1993. Short-term solute fluctuations in ground water: Modeling implications. *Journal of Hydraulic Engineering*, 119(7), 830-837.
- Hudak, P.F., 1993. Effects of improper characterization of aquifer thickness on hydraulic conductivity estimates from pumping tests. *Ground Water Monitoring and Remediation*, 13(2), 113-117.
- Hudak, P.F., K. Clements, and H.A. Loaiciga, 1993. Water-table correction factors applied to gasoline contamination. *Journal of Environmental Engineering*, 119(3), 578-584.

Loaiciga, H.A., R. Leipnik, M.A. Marino, and P.F. Hudak, 1993. Stochastic ground water flow analysis in the presence of trends in heterogeneous hydraulic conductivity fields. *Mathematical Geology*, 25(2), 161-176.

Loaiciga, H.A., J. Michaelsen, and P.F. Hudak, 1992. Truncated distributions in hydrologic analysis. *Water Resources Bulletin*, 28(5), 853-863.

Hudak, P.F., 1992. Terminal decollement tectonics in the Appalachian Plateau of northwestern Pennsylvania. *Northeastern Geology*, 14(2-3), 108-112.

Hudak, P.F. and H.A. Loaiciga, 1992. A location modeling approach for groundwater monitoring network augmentation. *Water Resources Research*, 28(3), 643-649.

Hudak, P.F. and H.A. Loaiciga, 1991. Mass transport modeling in landfill-contaminated buried valley aquifer. *Journal of Water Resources Planning and Management*, 117(2), 260-272.

Loaiciga, H.A. and P.F. Hudak, 1989. Correlated versus uncorrelated hydrologic samples. *Journal of Water Resources Planning and Management*, 115(5), 699-705.

Peer-Reviewed Monographs

Hudak, P.F., H.A. Loaiciga, and M.A. Marino, 1993. Regional scale ground-water quality monitoring: Methods and case studies. *California Water Resources Center*, Contribution 203, 1-73.

Peer-Reviewed Standards

KSTAT Standards Committee, American Society of Civil Engineers and Environmental and Water Resources Institute, 2020. Estimation of Aquifer Hydraulic Properties by Inverse Numerical Modeling of Aquifer Pumping Tests. ANSI/ASCE/EWRI Standard 70-19, American Society of Civil Engineers, Reston, VA.

KSTAT Standards Committee, American Society of Civil Engineers and Environmental and Water Resources Institute, 2017. Calculation of the Saturated Hydraulic Conductivity of Fine-Grained Soils. ANSI/ASCE/EWRI Standard 65-17, American Society of Civil Engineers, Reston, VA.

KSTAT Standards Committee, American Society of Civil Engineers and Environmental and Water Resources Institute, 2010. Standard Guideline for the Geostatistical Estimation and Block-Averaging of Homogeneous and Isotropic Saturated Hydraulic Conductivity. ASCE/EWRI Standard 54-10, American Society of Civil Engineers, Reston, VA.

KSTAT Standards Committee, American Society of Civil Engineers and Environmental and Water Resources Institute, 2008. Standard Guideline for Calculating the Effective Saturated Hydraulic Conductivity. ASCE/EWRI Standard 51-08, American Society of Civil Engineers, Reston, VA.

KSTAT Standards Committee, American Society of Civil Engineers and Environmental and Water Resources Institute, 2008. Standard Guideline for Fitting Saturated Hydraulic Conductivity Using Probability Density Functions. ASCE/EWRI Standard 50-08, American Society of Civil Engineers, Reston, VA.

Proceedings Articles

Stuckey, H.T. and P.F. Hudak, 1998. Methods to enhance compost practices as an alternative to waste disposal. *Air and Waste Management Association Annual Meeting Proceedings*, 1-7.

Hudak, P.F., 1997. Potential sources of contamination to the Trinity Aquifer: A spatial analysis. *Papers and Proceedings of the Applied Geography Conferences*, 20, 143-147.

Hudak, P.F., 1996. Designing three-dimensional groundwater monitoring networks with capability for vertical profiling: A Texas case study. *Papers and Proceedings of the Applied Geography Conferences*, 19, 7-13.

Hudak, P.F., 1995. Optimizing residential sprinkler systems. *Proceedings of the Water for Texas Conference*, 225-232.

Hudak, P.F., 1993. Impact of aquifer base definition on pumping test hydraulic conductivity estimates. *Proceedings of the Annual Meeting of the Texas Academy of Science*, 236-240.

Hudak, P.F., 1993. Application of location modeling and numerical particle tracking to groundwater contaminant plume extraction. *Proceedings of the Annual Meeting of the Texas Academy of Science*, 195-200.

Loaiciga, H.A. and P.F. Hudak, 1989. An approach for groundwater plume delineation. *Proceedings of the National Conference on Hydraulic Engineering*, American Society of Civil Engineers, 410-415.

Other Articles

Hudak, P.F., 2023. Establishing buttonbush (*Cephalanthus occidentalis* L.) from cuttings in high-energy lakeshore environments. *LakeLine*, 43(3), 21-24.

Hudak, P.F., 2022. Study shows how ground heat hazards can be harmful to man's best friend. *The Professional Geologist*, 59(3), 30.

Hudak, P.F., 2021. Hot weather creates trail hazards for dogs. *Creature Companion*, 14(11), 26-27.

Hudak, P.F., 2000. Reflections on Rachel Carson's Silent Spring. *Sustainable Communities Review*, 3(2), 40.

Books and Manuals

Hudak, P.F., 2001-2019. *Physical Geology Laboratory Manual*, 10-23/e. Stipes Publishing Company, Champaign, IL.

Hudak, P.F., G. Maxey, and others, 1993-2000. *Physical Geology Laboratory Manual*, 2-9/e. Stipes Publishing Company, Champaign, IL.

Hudak, P.F., 1998, 2000, 2005 *Principles of Hydrogeology*, 1-3/e. McGraw-Hill (1/e, Dubuque, IA), CRC Press (2-3/e, Boca Raton, FL).

Hudak, P.F., 1997. *Hydrogeology Field Manual*. Stipes Publishing Company, Champaign, IL.

Hudak, P.F. (ed.), 1994-2000. *Earth Science Laboratory Manual*, 3-9/e. Stipes Publishing Company, Champaign, IL.

Lyons, D.L. and P.F. Hudak (eds.), 1997. *Geographical Perspectives on the Texas Region*. Association of American Geographers, Washington, DC.

Hudak, P.F., 1995. *Introductory Lessons and Exercises in Applied Hydrogeology*. Stipes Publishing Company, Champaign, IL.

Maxey, G., P.F. Hudak, and others, 1994-95. *Historical Geology Laboratory Manual*, 3-4/e. Stipes Publishing Company, Champaign, IL.

Peer-Reviewed Book Chapters

Loaiciga, H.A. and P.F. Hudak, 2008. Storativity and specific yield. In *Encyclopedia of Water Science*, 2/e, 1158-1162. Marcel Dekker, New York, NY.

Hudak, P.F., 2005. Mass transport in saturated media. In *Water Encyclopedia: Ground Water*. Wiley, Hoboken, NJ.

Hudak, P.F., 2004. Well pattern, setback, and flow rate considerations for groundwater monitoring networks at landfills. In *Environmental Monitoring*. CRC Press, Boca Raton, FL.

Hudak, P.F., 2003. Monitoring groundwater beneath a solid waste landfill in Tarrant County, Texas. In *Long-Term Groundwater Monitoring: The State of the Art*. American Society of Civil Engineers, Reston, VA.

Loaiciga, H.A., P.F. Hudak, and B. Minsker, 2003. Methods for optimizing long-term monitoring designs. In *Long-Term Groundwater Monitoring: The State of the Art*. American Society of Civil Engineers, Reston, VA.

Hudak, P.F., 2003. Groundwater levels, measuring. In *Encyclopedia of Water Science*, 342-344. Marcel Dekker, New York, NY.

Loaiciga, H.A. and P.F. Hudak, 2003. Storativity and specific yield. In *Encyclopedia of Water Science*, 937-941. Marcel Dekker, New York, NY.

Hudak, P.F., 1997. Groundwater resources of the upper Trinity River basin. In *Geographical Perspectives on the Texas Region*, 125-131. Association of American Geographers, Washington, DC.

Book Reviews

Exploring Sustainable Development: Geographical Perspectives. M. Purvis and A. Grainger (eds.). 2005. *Sustainable Communities Review*, 8(1), 79-80.

Wetland and Riparian Areas of the Intermountain West: Ecology and Management. M.C. McKinstry, W.A. Hubert, and S.H. Anderson (eds.). 2005. *Sustainable Communities Review*, 8(1), 81-82.

People and Forests. C.C. Gibson, M.A. McKean, and E. Ostrom (eds.). 2001. *Sustainable Communities Review*, 5(1), 45-46.

Environmental Challenges. S. Belkin and S. Gabbay (eds.). 2001. *Journal of the American Water Resources Association*, 37(3), 759-760.

Geology and Hazardous Waste Management. S.E. Hasan. 1996. *Water Resources Bulletin*, 32(4), 866-867.

Analytic Element Modeling of Groundwater Flow. H.M. Haitjema. 1996. *Water Resources Bulletin*, 32(2), 416-417.

Alternatives for Ground Water Cleanup. National Research Council on Ground Water Cleanup Alternatives. 1995. *Eos*, 76(27), 268.

Dissertation and Theses

Hudak, P.F., 1991. Analytical methods for regional-scale ground water monitoring network design and numerical verification. Ph.D. Dissertation, University of California, Santa Barbara, CA.

Hudak, P.F., 1988. Conjunctive use of ground water flow and mass transport models in simulation of contaminant migration, Butler County Landfill, Ohio. M.S. Thesis, Wright State University, Dayton, OH (also published as *Wright State University Technical Report*, HY 8802 PH).

Hudak, P.F., 1986. Strained crinoid ossicles and minor folding as evidence for decollement tectonics in the Appalachian Plateau of northwestern Pennsylvania. B.S. Thesis, Allegheny College, Meadville, PA.

Abstracts and Presentations

Davilla, D., P.F. Hudak, and C. Tiwari, 2022. Patterns of recent nitrate and arsenic concentrations in the Ogallala Aquifer of Texas (presented at Annual SACNAS Conference, Puerto Rico, October 26, 2022).

Panelist, Society for Ecological Restoration and Geography Research Symposium (Denton, Texas, April 1, 2022).

Davilla, D., C. Tiwari, J. Oppong, and P.F. Hudak, 2021. Spatio-temporal trends in groundwater concentration of arsenic across Texas, 1990-2019 (presented at Annual Meeting of the American Association of Geographers, April 7-11, 2021).

Hudak, P.F., 2020. Evaluation of mechanical and chemical methods for controlling Chinese privet (*Ligustrum sinense* Lour.) in a rural lawn (presented at Texas Plant Conservation Conference, Fort Worth, Texas, August 13-14, 2020).

Yesildirek, M.V. and P.F. Hudak, P.F., 2020. Visualizing riparian ecotone fragmentation in urbanizing watersheds: A case study of upper Hickory Creek, north-central Texas (presented at Texas Plant Conservation Conference, Fort Worth, Texas, August 13-14, 2020).

Proctor, J. and P.F. Hudak, P.F., 2020. Suburban wetlands and water birds in eastern Denton County, Texas (presented at Texas Plant Conservation Conference, Fort Worth, Texas, August 13-14, 2020).

Davilla, D., C. Tiwari, and P.F. Hudak, 2020. Identifying spatio-temporal trends in groundwater concentration of arsenic across Texas, 1990-2019 (presented at Annual Applied Geography Conference, October 18-20, 2020).

Schug, K.A., Z.L. Hildebrand, D.D. Carlton, B.E. Fontenot, J.M. Meik, J.L. Walton, J.B. Thacker, A.F. Kadjo, C.P. Shelor, S. Korlie, and P.F. Hudak, 2015. Assessment of the potential impact of natural gas extraction on well water quality in the Barnett Shale of north Texas (presented at International Environmental Forensics Meeting, Toronto, August 3-6, 2015).

Barnett, J.M. and P.F. Hudak, 2015. Impacts of Chinese privet (*Ligustrum sinense*) on survival and re-establishment of native vegetation (presented at University of North Texas, Denton, TX, March, 2015).

Barnett, J.M., P.F. Hudak, C.R. Ferring, and G.O. Dick, 2015. Impacts of Chinese privet (*Ligustrum sinense*) on survival and re-establishment of native vegetation (presented at Texas Woman's University, Denton, TX, April, 2015).

Barnett, J.M., P.F. Hudak, G.O. Dick, and C.R. Ferring, 2015. Evaluation of allelopathy and other soil-altering properties on invasive Chinese privet (*Ligustrum sinense*) (presented at Annual Meeting of the Association of American Geographers, Chicago, IL, April 21-25, 2015).

Barnett, J.M. and P.F. Hudak, 2014. Favorable habitat for *Ligustrum* sp. and its effects on mature trees in north-central Texas (presented at University of North Texas, Denton, TX, April, 2014).

Hudak, P.F., 2013. Inundation patterns and plant growth in constructed wetland characterized by dynamic water budget model (presented at Annual Applied Geography Conference, Annapolis, MD, October 30-November 1, 2013).

Woodard, J.K., S.N. Garcia, P.F. Hudak, and D.B. Huggett, 2013. Comparative phyto-uptake using concentration factor estimates: Carbamazepine and amiodarone uptake in *Lemna* spp. (presented at Annual Conference of the Aquatic Plant Management Society, San Antonio, TX, July 14-17, 2013).

Hudak, P.F. and N. Enwright, 2010. Estimating inundation patterns in detention wetlands: Methodology and application to north-central Texas (presented at Annual Applied Geography Conference, Fort Worth, TX, October 20-23, 2010).

Hudak, P.F., 2010. Environmental geology in the Upper Trinity River Basin (presented at WaterWays 2010 and Fluid Frontier International Conference and Symposium, Denton, TX, March 3-5, 2010).

Enwright, N. and P.F. Hudak, 2010. Estimating inundation patterns in detention wetlands: Methodology and application to north-central Texas (presented at WaterWays 2010 and Fluid Frontier International Conference and Symposium, Denton, TX, March 3-5, 2010).

Enwright, N. and P.F. Hudak, 2010. Estimating inundation patterns in detention wetlands: Methodology and application to north-central Texas (presented at Louisiana Remote Sensing and GIS Workshop, Lafayette, LA, April 27-29, 2010).

Hudak, P.F. and D.J. Wachal, 2009. Characterizing storm water runoff from natural gas well sites in north-central Texas (presented at Annual Applied Geography Conference, Baton Rouge, LA, October 28-31, 2009).

Enwright, N. and P.F. Hudak, 2009. Spatial distribution of nitrate and related factors in the High Plains Aquifer, Texas (presented at Annual Meeting of the Association of American Geographers, Las Vegas, NV, March 22-27, 2009).

Hudak, P.F., 2008. Evaluation of reactive well networks for remediating heterogeneous aquifers (presented at Annual Applied Geography Conference, Wilmington, DE, October 15-18, 2008).

Hudak, P.F., 2008. Arsenic in west Texas groundwater: Patterns and potential sources (presented at U.S. Environmental Protection Agency, Dallas, TX, February 21, 2008).

Hudak, P.F., 2007. Spatial and temporal patterns of arsenic in the High Plains Aquifer, Texas (presented at Annual Applied Geography Conference, Indianapolis, IN, October 17-20, 2007).

Hudak, P.F., 2007. Applied geography and water resources: Past themes and future directions (presented at Annual Applied Geography Conference, Indianapolis, IN, October 17-20, 2007).

Williams, P.E., G.O. Dick, and P.F. Hudak, 2007. Excluding and trapping common carp (*Cyprinus carpio*) to improve native submerged macrophyte establishment (presented at Texas Aquatic Plant Management Society Annual Conference, Burnet, TX, September 17-19, 2007).

Hudak, P.F. and S. McCall, 2006. Developing water resources in rural Jamaica: A case study in southern Trelawny (presented at Annual Applied Geography Conference, Tampa, FL, October 11-14, 2006).

Williams, P.E., G.O. Dick, and P.F. Hudak, 2006. Development of exclusion device and trapping of common carp (*Cyprinus carpio*) to facilitate native macrophyte establishment within lakes and reservoirs (presented at Texas Aquatic Plant Management Society Annual Conference, Jasper, TX, September 11-13, 2006).

Hudak, P.F., 2005. Arsenic in groundwater: A west Texas case study (presented at University of North Texas, Denton, TX, April 1, 2005).

Hudak, P.F. and others, 2005. Modeling hydrological dynamics of the Ventos Watershed (presented in Alcoy, Spain, July 15, 2005).

Hudak, P.F. and L.L. Williams, 2005. Hydrogeology and plant survival in excavated depressions near an earthen dam in north-central Texas. *Papers of the Applied Geography Conferences*, 441 (presented at Annual Applied Geography Conference, Washington, D.C., November 2-5, 2005).

Hudak, P.F., 2004. Oil production and groundwater quality in the Edwards-Trinity Plateau Aquifer, Texas, USA. *Papers and Proceedings of the Applied Geography Conferences*, 501 (presented at Annual Applied Geography Conference, St. Louis, MO, October 20-23, 2004).

Hudak, P.F. and A. Thapinta, 2003. Use of geographic information systems for assessing groundwater pollution potential by pesticides in central Thailand. *Papers and Proceedings of the Applied Geography Conferences*, 543 (presented at Annual Applied Geography Conference, Colorado Springs, CO, November 5-8, 2003).

Hudak, P.F. and H.T. Stuckey, 2003. Practicing sustainable forestry in east Texas: Applying compost to loblolly pine plantations (presented at "Building Sustainable Communities in Mexico and USA," Denton, TX, January 15-20, 2003).

Maxey, G., P.F. Hudak, and S.M. Maxey, 2003. Lightning, downed power line form intriguing rock structure in Denton, Texas (presented at Annual Meeting of the Geological Society of America, Cordilleran Section, Puerto Vallarta, Mexico, April 1-3, 2003).

Hudak, P.F., 2002. Arsenic, nitrate, chloride, and bromide contamination in the southeast Gulf Coast Aquifer, Texas. *Papers and Proceedings of the Applied Geography Conferences*, 393 (presented at Annual Applied Geography Conference, Binghamton, NY, October 23-26, 2002).

Maxey, G. and P.F. Hudak, 2002. Electric power line vitrifies north Texas soil, creates bizarre rock form (presented at Dallas Geological Society, Dallas, TX, October 8, 2002).

Hudak, P.F., 2002. Oil production, agriculture, and groundwater quality in the southeast Gulf Coast Aquifer, Texas (presented at Spring Meeting of American Geophysical Union, Washington, DC, May 28 - June 1, 2002).

Sallee, D. and P.F. Hudak, 2002. Geologic controls on white-tailed deer distribution in Denton County (presented at Dallas Geological Society, Dallas, TX, February 21, 2002).

Hudak, P.F., 2001. Solute concentration trends in the Woodbine Aquifer (presented at Dallas Geological Society, Dallas, TX, October 9, 2001).

Hudak, P.F. and J.R. Kuiper, 2001. Post impoundment investigation of gravity-driven irrigation ponds in central Bolivia. *Papers and Proceedings of the Applied Geography Conferences*, 388 (presented at Annual Applied Geography Conference, Fort Worth, TX, November 14-17, 2001).

Hudak, P.F., 2001. Arsenic contamination in west Texas groundwater (presented at UNT Health Science Center, Fort Worth, TX, September 10, 2001).

Hudak, P.F. and H.T. Stuckey, 2001. Effects of compost on loblolly pine tree growth in northeast Texas, USA. *Proceedings of the Annual Meeting of the American Association for the Advancement of Science, Southwestern and Rocky Mountain Region*, 41(1), 25 (presented at American Association for the Advancement of Science Conference, Denton, TX, March 25-28, 2001).

Hudak, P.F., 2000. Distribution and sources of arsenic in the Southern High Plains Aquifer, Texas, USA. *Papers and Proceedings of the Applied Geography Conferences*, 424 (presented at Annual Applied Geography Conference, Tampa, FL, October 11-14, 2000).

Forbes, M., K. Dickson, R. Doyle, P.F. Hudak, F. Saleh, and T. Waller, 2000. Preliminary investigations of phosphorous sorption by two filter media for use in constructed wetlands (presented at Annual Meeting of Society of Environmental Toxicology and Chemistry, South-Central Chapter, Denton, TX, March 23, 2000).

Hudak, P.F., 1999. Regional trends in nitrate content of Texas groundwater. *Papers and Proceedings of the Applied Geography Conferences*, 453 (presented at Annual Applied Geography Conference, Charlotte, NC, October 13-16, 1999).

Hudak, P.F., 1999. Affordable groundwater development in rural communities (presented at "An Aging Planet, an Expanding Population and a Sustainable Future: Changing Attitudes and Values," Denton, TX, May 27-28, 1999)

Woods, V. and P.F. Hudak, 1999. Non-point source water quality sampling network for Lake Ray Roberts, Texas (presented at Annual Meeting of the Western Social Science Association, Fort Worth, TX, April 23, 1999).

Hudak, P.F., 1999. Spatial patterns of residential foundation damage in Denton, TX. *Texas Academy of Science Annual Meeting Abstracts*, 73-74 (presented at Annual Meeting of the Texas Academy of Science, Seguin, TX, March 4-6, 1999).

Hudak, P.F., 1999. Nitrate and chloride concentrations in the High Plains aquifer. *Texas Academy of Science Annual Meeting Abstracts*, 74 (presented at Annual Meeting of the Texas Academy of Science, Seguin, TX, March 4-6, 1999).

Hudak, P.F., 1999. Geophysical prospecting for oilfield brine in the Trinity River watershed. *Texas Academy of Science Annual Meeting Abstracts*, 74 (presented at Annual Meeting of the Texas Academy of Science, Seguin, TX, March 4-6, 1999).

Hudak, P.F., 1998. Efficiency of alternative injection schemes for remediating benzene-contaminated groundwater. *Papers and Proceedings of the Applied Geography Conferences*, 471 (presented at Annual Applied Geography Conference, Louisville, KY, October 21-24, 1998).

Hudak, P.F., 1998. Groundwater modeling and research (presented at Elm Fork Seniors Conference, Denton, TX, July 27, 1998).

Hudak, P.F., 1998. Structural problems in residual soils of north-central Texas (presented at UNT Environmental Science Seminar, Denton, TX, March 25, 1998).

Hudak, P.F., 1998. Underground pipe breaks in expansive soils of north-central Texas. *Texas Academy of Science Annual Meeting Abstracts*, 60 (presented at Annual Meeting of the Texas Academy of Science, Tyler, TX, March 5-7, 1998).

Stuckey, H.T. and P.F. Hudak, 1998. Assessing the feasibility of compost markets as an alternative to waste disposal (presented at International Conference of the Air and Waste Management Association, San Diego, CA, June 14-18, 1998).

Hudak, P.F., 1997. Potential sources of contamination to the Trinity Aquifer: A spatial analysis. *Papers and Proceedings of the Applied Geography Conferences*, 363 (presented at Annual Applied Geography Conference, Albuquerque, NM, November 12-15, 1997).

Hudak, P.F., 1997. Groundwater conditions in the Trinity Aquifer of northern Texas (presented at UNT Geography Spring Banquet, Denton, TX, April 19, 1997).

Hudak, P.F., 1997. Land use and groundwater quality in the Trinity Aquifer of north-central Texas. *AAG Annual Meeting Abstracts*, 119 (presented at Annual Meeting of the Association of American Geographers, Fort Worth, TX, April 1-5, 1997).

Hudak, P.F., 1997. Groundwater monitoring strategies for variable versus continuous contaminant loading functions. *Texas Academy of Science Annual Meeting Abstracts*, 72 (presented at Annual Meeting of the Texas Academy of Science, Huntsville, TX, March 6-8, 1997).

Hudak, P.F., 1996. Designing three-dimensional groundwater monitoring networks with capability for vertical profiling: A Texas case study. *Papers and Proceedings of Applied Geography Conferences*, 333 (presented at Annual Applied Geography Conference, Kansas City, MO, October 16-19, 1996).

Hudak, P.F., 1996. Designing compliance monitoring networks in layered aquifers with nonuniform flow. *AAG Annual Meeting Abstracts*, 136-137 (presented at Annual Meeting of the Association of American Geographers, Charlotte, NC, April 9-13, 1996).

Hudak, P.F., 1996. Hydrogeologic applications of computer modeling and geographic information systems (presented at UNT Environmental Science Seminar, Denton, TX April 24, 1996).

Hudak, P.F., 1996. Utilizing geographic information systems to mitigate pollution from underground storage tanks. *Texas Academy of Science Annual Meeting Abstracts*, 80-81 (presented at Annual Meeting of the Texas Academy of Science, Galveston, TX, February 29 - March 2, 1996).

White, S.A. and P.F. Hudak, 1996. Comparison of remediation methods in different hydrogeologic settings using BIOPLUME II. *Texas Academy of Science Annual Meeting Abstracts*, 61 (presented at Annual Meeting of the Texas Academy of Science, Galveston, TX, February 29 - March 2, 1996).

Stewart, L.K., P.F. Hudak, and R.D. Doyle, 1995. Numerical modeling of hydrologic management alternatives for a nascent wetland in north central Texas. *SWS Meeting Abstracts* (presented at Annual Meeting of the Society of Wetland Scientists, South Central Chapter, Little Rock, AR, November 34, 1995).

Hudak, P.F., 1995. Algorithms for designing stationary sprinkler systems. *SWAAG Meeting Abstracts* (presented at Fall Meeting of the Association of American Geographers, Southwest Division, Las Cruces, NM October 5-7, 1995).

Hudak, P.F., 1995. Tracing groundwater pollution with GIS. *East Texas GIS Forum Abstracts*, 6 (presented at East Texas Geographic Information Systems Forum, Huntsville, TX October 27, 1995).

Hudak, P.F., 1995. Proximity of streams to landfills in north-central Texas. *AAG Annual Meeting Abstracts*, 136 (presented at Annual Meeting of the Association of American Geographers, Chicago, IL, March 14-18, 1995).

Hudak, P.F., 1995. Effects of using capture zone overlays to predict removal of groundwater contaminants. *Texas Academy of Science Annual Meeting Abstracts*, 58 (presented at Annual Meeting of the Texas Academy of Science, Waco, TX, March 2-4, 1995).

Hudak, P.F., 1995. Optimizing residential sprinkler systems (presented at Annual Water for Texas Conference, Austin, TX, Jan. 26-27, 1995).

Stewart, L.K., P.F. Hudak, and R.D. Doyle, 1995. Developing a hydrological management model for a marshy wetland near Lake Lewisville, Texas. *SETAC Meeting Abstracts*, 21 (presented at Joint Meeting of the Society of Environmental Toxicology and Chemistry, South Central and Ozark Prairie Regional Chapters, Denton, TX May 18-20, 1995).

Hudak, P.F., 1994. Errors in modeling groundwater remediation with capture zones (presented at Fall Meeting of Association of American Geographers, Southwest Division, Hot Springs, AR, Oct. 20-22, 1994).

Hudak, P.F., 1994. Time-constrained recovery of contaminated groundwater. *AAG Annual Meeting Abstracts*, 167 (presented at Annual Meeting of the Association of American Geographers, San Francisco, CA, March 29 - April 2, 1994).

Hudak, P.F., 1994. Establishing compliance-based groundwater monitoring networks near landfills. *Texas Academy of Science Annual Meeting Abstracts*, 55 (presented at Annual Meeting of the Texas Academy of Science, Houston, TX March 3-5, 1994).

Hudak, P.F., 1994. Mathematical models for deriving groundwater monitoring and remediation systems (presented at UNT Environmental Science Seminar, Denton, TX, January 26, 1994).

Hudak, P.F., 1993. A method for monitoring groundwater quality near waste storage facilities. *SWAAG Meeting Abstracts*, 18 (presented at Fall Meeting of Association of American Geographers, Southwest Division, Fayetteville, AR, October 21-23, 1993).

Hudak, P.F., 1993. Application of geographical techniques to groundwater monitoring network design. *AAG Annual Meeting Abstracts*, 108 (presented at Annual Meeting of the Association of American Geographers, Atlanta, GA, April 6-11, 1993).

Hudak, P.F., 1993. Application of location modeling and numerical particle tracking to groundwater contaminant plume extraction. *Texas Academy of Science Annual Meeting Abstracts* (presented at Annual Meeting of the Texas Academy of Science, Denton, TX, March 4-6, 1993).

Hudak, P.F., 1993. Impact of aquifer base definition on pumping test hydraulic conductivity estimates. *Texas Academy of Science Annual Meeting Abstracts* (presented at Annual Meeting of the Texas Academy of Science, Denton, TX, March 4-6, 1993).

Hudak, P.F., 1992. An optimization method for efficient extraction of a groundwater contaminant plume. *SWAAG Program and Abstracts* (presented at Fall Meeting of Association of American Geographers, Southwest Division, Denton, TX, October 21-23, 1992).

Hudak, P.F., 1992. Short-term contaminant concentration fluctuations in groundwater: Implications for predictive modeling. *SWAAG Program and Abstracts* (presented at Fall Meeting of Association of American Geographers, Southwest Division, Denton, TX, October 21-23, 1992).

Hudak, P.F., 1992. Optimization methods for monitoring network design in multi-layered ground water flow systems. *Ground Water*, 30(1), 120.

Hudak, P.F., H.A. Loaiciga, and M.A. Marino, 1991. Analytical methods for regional-scale ground water monitoring network design and numerical verification. *Eos*, 72(44), 209 (presented at Fall Meeting of American Geophysical Union, San Francisco, CA, December 9-13, 1991).

Marino, M.A., H.A. Loaiciga, R.B. Leipnik, and P.F. Hudak, 1991. Stochastic ground water analysis in the presence of trends in heterogeneous hydraulic conductivity fields. *Eos*, 72(44), 226.

Hudak, P.F., 1988. Contaminant transport simulation and parameter estimation in a flood plain aquifer in southwest Ohio. *Eos*, 69(16), 371 (presented at Spring Meeting of American Geophysical Union, Baltimore, MD, May 15-20, 1988).

Hudak, P.F., 1988. Conjunctive use of ground water flow and mass transport models in simulation of contaminant migration, Butler County Landfill, Ohio. *Ground Water*, 26(4), 511.

Hudak, P.F., 1988. Computer modeling of mass transport in a landfill-contaminated aquifer (presented at Annual Student Research Colloquium, Wright State University Sigma Xi, May 4, 1988).

Hudak, P.F. and H.A. Loaiciga, 1988. Water storage reliability assessment and post optimality analysis of operational policies. *Eos*, 69(44), 1184 (presented at Fall Meeting of American Geophysical Union, San Francisco, CA, December 6-11, 1988).

Hudak, P.F., W. Brewer, and P. Kennelley, 1986. Strained crinoid ossicles and decollement tectonics in the Appalachian Plateau of northwestern Pennsylvania. *Geological Society of America Abstracts with Programs*, 18(1), 23 (presented at Annual Meeting of Geological Society of America, Northeastern Section, Kiamesha Lake, NY, March 12-14, 1986).

Selected Technical Reports

City of Denton, Texas Compactor Waste Stream Characterization Study, Institute of Applied Sciences and Department of Geography, University of North Texas, 2001.

City of Denton, Texas Residential Municipal Solid Waste Stream Characterization Study, Institute of Applied Sciences and Department of Geography, University of North Texas, 2000.

City of Denton, Texas Commercial Waste Stream Characterization Study, Institute of Applied Sciences and Department of Geography, University of North Texas, 1999, 2001.

Groundwater Modeling at the Dallas Naval Weapons Industrial Reserve Plant, Department of Geography, University of North Texas, 1994.

Effluent Storage Reservoir, Laguna Sanitation District, Santa Maria, California, K-C Geotechnical Associates, 1991.

Summary of Groundwater Remediation Strategies, MTD Property, Santa Barbara, California, K-C Geotechnical Associates, 1989.

Summary Report of Waste Discharge, Dunn School, Los Olivos, California, K-C Geotechnical Associates, 1989.

Well Field Expansion Study, Troy, Ohio, Panterra Corporation, 1988.

Ground Water Source Protection Study, New Carlisle, Ohio, Panterra Corporation, 1988.

Montgomery County Moraine System Production Facilities Management Plan, Panterra Corporation, 1988.

Doctoral Dissertations Chaired

Wachal, D.J., 2007. Characterizing Storm Water Runoff from Natural Gas Well Sites in Denton County, Texas.

Brady, P., 2004. City of Denton Municipal Solid Waste Characterization and Management Strategies.

Thapinta, A., 2002. Use of Geographic Information Systems for Assessing Groundwater Pollution Potential by Pesticides in Central Thailand.

Stuckey, H.T., 1999. Ecological Enhancement of Timber Growth: Applying Compost to Loblolly Pine Plantations.

Master's Theses Chaired

Kirk, R., 2022. The death and life of great American malls: (Un)spectacular creative destructions, luxury mixed-use developments, and gentrification in Dallas-Fort Worth.

Yesildirek, M., 2019. An assessment of riparian buffer effectiveness in the upper Hickory Creek Watershed: A GIS approach using the riparian buffer delineation equation (RBDE) and the buffer improvement potential percentage (BP).

Proctor, J., 2019. What would a waterbird do? An annual study of 13 urban wetlands in Frisco, Texas.

Barnett, J., 2016. The Impact of Chinese Privet (*Ligustrum Sinense*) on the Survival and Re-Establishment of Native Plants at the Dallas Floodway Extension.

Strong, P., 2015. Efficiency of Nitrate and Phosphorus Removal in a Working Rain Garden.

Shrestha, M., 2015. Exceedance Frequency Analysis of Urban Stormwater Quality and its Relation to Land Use Change, Denton, Texas.

Woodard, J.K., 2013. Comparative Phyto-Uptake Across Distribution Coefficients of Pharmaceutical Compounds and Aquatic Macrophytes: Carbamazepine and Amiodarone Uptake in *Lemna* Spp.

Nickerson, J., 2012. The Role of Knowledge and Attitude in Residential Irrigation Efficiency.

Reiser, C., 2011. Characterization of Jackson Blue Spring, Jackson County, Florida.

Enwright, N., 2010. Using Geographic Information Systems for the Functional Assessment of Texas Coastal Prairie Freshwater Wetlands around Galveston Bay.

Graham, T., 2010. Wind Energy-Related Bird and Bat Fatalities: Analysis and Potential Implications for Endangered and Threatened Species in Texas.

Wilson, M., 2009. The Proposed Fastrill Reservoir in East Texas: A Study using Geographic Information Systems.

Williams, P.E., 2008. Evaluation of a Common Carp (*Cyprinus carpio L.*) Exclusion and Trapping Device for use in Aquatic Plant Founder Colony Establishment.

McCall, S., 2005. Water Systems, Water Policy, and Karst Terrain: An Analysis of the Complex Relationships between Geology, Economy, Public Perceptions, and Policy in Southern Trelawny, Jamaica.

Williams, L.L., 2004. Surface Water and Groundwater Hydrology of Borrow-Pit Wetlands and Surrounding Areas of the Lewisville Lake Environmental Learning Area, Lewisville, Texas.

Sallee, D.R., 2002. Use of Geographic Information Systems and Infrared-Triggered Cameras to Assess White-Tailed Deer (*Odocoileus Virginianus*) Habitat in Denton County, Texas.

Sanmanee, S., 2001. Use of GIS to Identify and Delineate Areas of Fluoride, Sulfate, Chloride, and Nitrate Levels in the Woodbine Aquifer, North Central Texas, in the 1950s, 1960s, 1970s, 1980s, and 1990s.

Hillin, C.K., 2000. Distribution and Probable Sources of Nitrate in the Seymour Aquifer, North-Central Texas, USA.

Appel, P.L., 2000. Use of Automated Sampler to Characterize Urban Stormwater Runoff in Pecan Creek.

Brady, P., 2000. Characterizing the Commercial-Municipal Solid Waste Stream in Denton, TX.

Kuiper, J.R., 1999. The Role of Rainfed Farm Ponds in Sustaining Agriculture and Soil Conservation in the Dry High Valley Region of Cochabamba, Bolivia: Design Considerations and Post Impoundment Analysis.

Stewart, L.K., 1996. Hydrologic Analysis of a Nascent Wetland near Lake Lewisville, Texas.

White, S.A., 1996. Comparison of Remediation Methods in Different Hydrogeologic Settings Using BIOPLUME II.

OTHER CONFERENCES AND WORKSHOPS ATTENDED

Advanced Excel, GeoDa/Alteryx, PowerBI/Tableau, April, 2022

Smart Campus: Design Thinking, Denton, TX, 2017

Annual Meeting of the American Association of Geographers, Boston, MA, April 5-9, 2017

Designing Maps to Tell Better Stories, Denton, TX, November 18, 2016

Southwest American Association of Geographers Conference, Denton, TX, October 20-21, 2016
 Human Security Workshop, Denton, TX, February 16, 2016
 The Age of Wonder, Denton, TX, September 23, 2013
 Educational Innovation Conference, Denton, TX, October 2, 2012
 Storm Water Management and Education Workshop, Grapevine, TX, May 25, 2012
 National Science Foundation Proposal Writing Workshop, Denton, TX, November 1, 2007
 Biodiesel Workshop, Denton, TX, May 19, 2006
 Service Leadership: Creating a Culture of Compliance, Denton, TX, July 21, 2005
 Regional Watershed Workshop, Denton, TX, April 29, 2005
 Management Controls Workshop, Denton, TX, 2004
 Teaching Large Classes, Denton, TX, October 7, 1993
 Computing and Networking Resources, Denton, TX, October 12, 1993
 Computer Networks, Denton, TX, October 15, 1993
 Active Learning, Denton, TX, September 29, 2000
 WebCT User Faculty Tutorial, Denton, TX, 2003
 Fifth and Sixth Conferences of the Zapotlan Project, Denton, TX, April 5-11, 1998 and April 5-10, 1999
 ArcView GIS Workshop, Denton, TX, January 28-29, 1999
 UNT/City of Denton Waste Management and Recycling Workshop, Denton, TX, November 19, 1998
 GIS/LIS Annual Conference and Exposition, Fort Worth, TX, November 8-12, 1998
 University of North Texas-Community College Conference, Denton, TX, April 28, 1998
 Environmental Issues in the Guzman Basin, Jalisco, Mexico, August 12-16, 1997
 Spatial Database Engine Seminar, Environmental Systems Research Institute, Dallas, TX, October 3, 1996
 Water Research and Planning, Texas Water Development Board, Austin, TX, January 19, 1993
 OSHA Hazardous Materials, Santa Barbara, CA, 1989
 Geological Society of America, Northeastern Section, Kiamesha Lake, NY, 1985
 Field Conference of Pennsylvania Geologists, State College, PA, 1985

GRANTS AND CONTRACTS FUNDED (PI=principal investigator)

External

PI, 2015. D.A. Duff Geoscience Collection, \$4,975.

PI, 2012-13. Recruiting Freshman and Sophomore Geography Majors: An EDGE Approach, Association of American Geographers, \$500.

Co-PI (PI: K. Stevens), 2008. Biotic and Hydrologic Characterization of the Wetlands on the City of Grand Prairie's Landfill, City of Grand Prairie, Texas, \$50,644.

Collaborator (PI: J. C. Sanchez Mesa), 2005-06. Development of Environmental Strategies for Sustainable Floriculture in the State of Mexico, ICAMEX, \$15,000.

Faculty Participant (PI: M. Acevedo), 2005-06. U.S.-Spain Cooperative Research: Modeling Grass and Shrub Vegetation Recovery after Disturbance, National Science Foundation, \$43,324.

Collaborator (PI: K. Banks, City of Denton), 2004-07. Demonstrating the Impacts of Oil and Gas Exploration on Water Quality and How to Minimize These Impacts through Targeted Monitoring Activities and Local Ordinances, U.S. Environmental Protection Agency, \$157,100.

PI, 2003. Soil and Water Sampling Equipment, Cornerstone Environmental, Dallas, Texas, \$2,169.

Co-PI, 2002. Residential Waste Characterization Study, City of Denton, Texas, \$15,000.

PI, 2001-03. Wetland Hydrology Project, Lake Lewisville Environmental Learning Area, U.S. Army Corps of Engineers, \$25,000.

- Co-PI, 2001. Commercial Waste Characterization Study, City of Denton, Texas, \$15,000.
- Co-PI, 2001. Compactor Waste Characterization Study, City of Denton, Texas, \$20,000.
- Co-PI, 2001. Map Files and Stands, Perot Systems, \$1,820.
- Co-PI, 2000-01. Pressure Plate Extractors and Filter Equipment, Mobil Corporation, \$4,652, 2001.
- Consultant (PI: J. Kennedy), Biologic and Hydrologic Assessments of Watersheds in Bandera County, Texas, Texas Nature Conservancy, \$10,000.
- Co-PI, 2000. Residential Waste Characterization Study, City of Denton, Texas, \$20,000.
- PI, 2000. SewerCAD Software, Haestad Methods, \$795.
- Co-PI, 1999-2001. Phosphorous Removal Project, City of Denton, Texas and Texas Industries, \$1,500.
- Co-PI, 1999-2000. Stormwater Runoff Study, City of Denton, Texas, \$15,000.
- PI, 1999-2000. Maps and Supplies, Federal Emergency Management Association, \$2,000.
- PI, 1999-2000. Melissa Landfill Project, DAVID Group, \$422.
- PI, 1999. Submersible Well Pump, Strittmatter Irrigation, \$500.
- Co-PI, 1999. Commercial Waste Characterization Study, City of Denton, Texas, \$20,000.
- PI, 1999. Civil Projects Software, Haestad Methods, \$1,995.
- Co-PI, 1998-2000. Lake Zapotlan and Basilio Badillo Environmental Monitoring Project, State of Jalisco, Mexico, \$50,000.
- PI, 1998-99. Assessing the Effects of Compost-Amended Soil on Loblolly Pine Trees, ARK-TEX Council of Governments, \$15,283.
- PI, 1998-99. Environmental Visualization System, C Tech, \$25,000.
- PI, 1998. Rock Drilling, Cutting, and Polishing Equipment, N. Pennington, \$943.
- Co-PI, 1998. Digital Ortho Quarter Quads, Denton County, Texas, \$2,500.
- PI, 1998. Hydrogeology Field Equipment, Voss Technologies, Aqua Bailers, CT Products, and Gator Plastics, \$1,000.
- PI, 1996-98. Enhancing Geographic Education with Data Visualization and GIS Technology, National Science Foundation and Texas Higher Education Assistance Fund, \$70,000.
- PI, 1996-98. Tracking Contamination and Protecting Groundwater in the Trinity Aquifer, Hydrosphere, \$1,393.
- PI, 1996-97. Distributing Geospatial Data via the World Wide Web, Core Software Technology, \$15,000.
- PI, 1996. Hydrogeology Field Equipment, Ardan Enterprises, RocTest, Campbell Monoflex, and Geoguard, \$1,070.
- Co-PI, 1996. Data Visualization Software, Paradigm Simulation, \$50,000.

PI, 1995-96. Evaluating Base-Flow Contamination Hazard in Urban Watersheds: A Northern Texas Case Study, Association of American Geographers, \$500.

Co-PI, 1994-96. Land Reclamation Project, City of Denton, Texas, \$25,000.

PI, 1994-95. Optimizing a Finite-Difference Model to Test Groundwater Monitoring Networks, National Science Foundation, \$20,000.

PI, 1994. Groundwater Modeling at the Dallas Naval Weapons Industrial Reserve Plant, ENSAFE Corporation, \$5,640.

PI, 1994. Hydrogeology Field Equipment, \$1,000, Global Water, Longyear Company, and IMTRA Corporation.

Research Assistant (PI: H. A. Loaiciga), 1990-92. Regional Scale Ground Water Quality Monitoring and Model Testing, California Water Resources Center, Project W-761, \$50,000.

Research Assistant (PI: H. A. Loaiciga), 1989-90. Hydrogeologic Site Characterization and Ground Water Quality Assessment for the Casmalia Class I Toxic Waste Disposal Facility, California Department of Health Services, Grant 89-T00701A-1, \$20,000.

PI, 1989. Geological Society of America, Research Grant 4461-90, \$1,000.

PI, 1988. American Geophysical Union Grant, \$300.

Internal

Co-PI, 2006-07. Humans and the Environment in Hispanic America: Mexico (Principal Investigator: M. Acevedo), University of North Texas Hispanic and Global Studies Initiatives Fund, \$22,000.

PI, 2005. Toxicity Assessment for Horticulture Plants in Toluca, Mexico, University of North Texas, \$950.

PI, 2001-02. Distribution of White-Tailed Deer in Denton County, Texas, University of North Texas, \$4,000.

PI, 2000-01. Phosphorous Retention Capacity of Two Filter Media in Constructed Wetlands, University of North Texas, \$750.

PI, 2000-01. Geologic Field Exercises for Lab-Science Students, Undergraduate Instructional Development Grant, University of North Texas, \$9,092.

PI, 1998-99. A Post-Impoundment Study of the Viability of Irrigation Ponds in Cochabamba, Bolivia, University of North Texas, \$825.

PI, 1998-99. Evaluating Subsurface Pipe Ruptures in Northern Texas, University of North Texas, \$2,500.

PI, 1998-99. Visualizing Groundwater Flow Fields and Contaminant Plumes in Undergraduate Earth Science Courses, Undergraduate Instructional Development Grant, University of North Texas, \$7,550.

PI, 1997-98. Disseminating Remotely-Sensed Images via the World Wide Web, University of North Texas, \$700.

PI, 1996-97. Applying Compost to Pine Tree Farms, University of North Texas, \$3,500, 1997-98.

Developing Scholars Grant, University of North Texas, \$2,500.

Co-PI, 1996-97. A Proposal to Establish a Visualization Pilot Project, Texas Higher Education Assistance Fund, \$50,000.

PI, 1996-97. Potential Pollutants and Migration Pathways in the Trinity Aquifer of Northern Texas, University of North Texas, \$2,500.

PI, 1996. Undergraduate Field Exercises in Applied Hydrogeology, Undergraduate Instructional Development Grant, University of North Texas, \$6,514.

PI, 1996. Detection Monitoring in Layered Aquifers with Non-Uniform Flow, University of North Texas, \$3,500.

PI, 1995-96. Modeling Alternative Remediation Strategies for Contaminated Groundwater in North-Central Texas, University of North Texas, \$2,500.

PI, 1995-95. Geoelectric Characterization of Subsurface Deposits in North-Central Texas, University of North Texas, \$3,500.

PI, 1994-95. A Computer-Based Learning Program in Hydrogeology for Undergraduate Geography Courses, Undergraduate Instructional Development Grant, University of North Texas, \$5,457.

PI, 1994. An Evaluation of the Effective Porosity of Aquifer Media, University of North Texas, \$3,500.

PI, 1993-94. A Geographical Analysis of Base Flow Contamination Potential in the Upper Trinity River Basin, University of North Texas, \$3,500.

PI, 1993. An Approach for Groundwater Plume Remediation, University of North Texas, \$3,500.

PI, 1992-93. Groundwater Monitoring Network Design in North-Central Texas, University of North Texas, \$3,300.

PI, 1991. Academic Senate Grant. University of California, Santa Barbara, \$200.